

Summer 1994

Undergraduate and Graduate Courses Day and Evening



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**IT'S STILL
NOT TOO
LATE TO
APPLY FOR
DAY SCHOOL
ADMISSIONS.**

See back page.

Summer Session I
May 23-June 30

Summer Session II
July 11-August 19

Register by phone, mail, or in person.
MasterCard and VISA accepted.

Design: Tepperman/Ray Associates • Illustration: Rob Saunders

University of Massachusetts Lowell
Continuing Education
One University Avenue
Lowell, MA 01854-2881
(508) 934-2480

The University uses multiple mailing lists. If you
receive a duplicate copy, please share it with a friend.

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Office of Enrollment Services

Regular hours:
Monday - Thursday, 8:30 a.m. - 8:30 p.m.
Friday 8:30 a.m. - 4:00 p.m. (except when Friday night classes are in session)

For general questions concerning Continuing Education, such as summer dates and general registration information, please call us at (508) 934-2480. (You will receive a recorded directory.) To register by phone, please call: (508) 934-2700.

For general questions concerning the University of Massachusetts Lowell, please call (508) 934-4000.

Please note our new location for Walk-in Registration: The Office of Enrollment Services, Southwick Hall, North Campus.

Location for General Registration: Cumnock Hall Auditorium.

Academic Information

Admission to a Certificate or Degree Program
Students who have graduated from high school or who have earned a high school equivalency certificate are invited to apply for programs leading to a Certificate or an Associate or Baccalaureate degree. Applications for all programs are accepted on a rolling admission basis. Contact the Division of Continuing Education Office at (508) 934-2470 for an application and information on the application procedure. The is no fee to apply.

The following degree and certificate programs are available on a part-time evening basis:

College of Engineering
Associate's and Bachelor's Degree
Civil Engineering Technology
Electronic Engineering Technology
Mechanical Engineering Technology

College of Arts and Sciences
Associate's Degree
Applied Chemistry
Applied Chemistry: Biotechnology Option
Applied Chemistry: Hazardous Waste Option
Applied Mathematics
Applied Mathematics: Computer Mathematics Option
Information Systems
Public Service: Administration of Criminal Justice
Bachelor's Degree
Applied Chemistry
Applied Chemistry: Coatings Option
Applied Mathematics
Applied Mathematics: Computer Mathematics Option
Criminal Justice
Criminal Justice: Paralegal Option
Information Systems
Liberal Arts degree in the Social Sciences with concentrations in Psychology, Sociology, History, Political Science

College of Management
Associate's Degree
Accounting
Banking
Management

Certificate Programs
Accounting
Banking
Computer Proficiency
Data Communications
Electro-Optics
Environmental Technology
Security Management
Manufacturing Technology
Paralegal
Plastics Engineering Technology
Purchasing Management
Quality Assurance
Spanish
Technical Writing
UNIX
Water Treatment
Wastewater Treatment

Registration Information

Check academic calendars on page 3 for appropriate deadlines for registration.

Remember to check course numbers. We have integrated the University of Massachusetts Lowell Day courses with the Continuing Education courses. In certain degree programs similar courses may have different numbers. It is important to check the course number and prerequisites in order to ensure that you are enrolling in the correct course.

We encourage you to mail-in or phone-in your registration information.

Mail-In Registration
1. Fill out the registration form and return it postmarked no later than the scheduled deadline.
2. Mail to: University of Massachusetts Lowell, Office of Enrollment Services/DCE, One University Ave., Lowell, MA 01854 - 2881
3. Payment must be made with the registration form, either by check, money order, VISA, or Master Card. Make checks payable to: University of Massachusetts Lowell
4. Students will receive class confirmation, room assignment, receipt and ID by mail before the first class meeting.

Phone-In Registration
1. Payment can be made by VISA or Master Card only.
2. Call (508) 934-2700 between the hours of 9:00 a.m. to 8:00 p.m. on Monday through Thursday and 9:00 a.m. to 4:00 p.m. on Friday. Students who register by phone will receive their class confirmation, receipt, and ID in the mail. The phone-in staff may take only registration information. If you have questions concerning courses and academic programs, please call (508) 934-2480. Please see page 3 for phone-in registration deadlines.

Office Walk-In Registration
Payment must be made at the time of registration. Payment after 4:00 p.m. must be made by check, money order, VISA, or Master Card. Students will receive class confirmation, room assignment, receipt, and ID at the time they register. Please refer to the Office of Enrollment Services office hours for walk-in registration times.

General Registration Dates
Students may register in person during general registration in the Cumnock Hall Auditorium. Appropriate forms will be available at the time of registration. Payment in full must be made at the time of registration.

Late Registration
In-person late registration will take place in Cumnock Auditorium or the Office of Continuing Education. See the appropriate calendar. There is an additional \$10.00 fee for late registration.

Final Drop/Add Period
See the appropriate academic calendar.

Last Day to Withdraw with "W" Notation
Students withdrawing from any class must officially notify the Office of Continuing Education on forms provided by the Office. Verbal messages to faculty or staff do not constitute official notification.

General Information

Parking
Parking stickers for the 1993-94 academic year are valid through August 31. New students are required to obtain a parking sticker for the summer session. In order to obtain a parking sticker, students must bring their valid car registration to Cumnock Auditorium during General Registration, or to University Police Headquarters in Ball 125, North Campus (open 24 hours a day, 7 days a week). This sticker entitles students to park in any University parking lot except at Cumnock Hall, Southwick Hall, and residence hall lots. Students should not park in "Residential Parking" areas. Lowell police will tow.

Bookstore Policy
If purchasing textbooks prior to the start of classes, please do not write or make any marks in the book. If textbooks are marked or written in, the bookstore will not accept them in return. Save your receipt until you are certain you have purchased the correct book. Bookstore hours will be posted during registration.

Students with Disabilities
Any disabled student who needs special arrangements should contact Pauline A. Carroll or Pamela Provencal early in the registration process. Special advising, registration assistance, preferential scheduling, and alternative examination procedures are available. Students must qualify for handicapped parking stickers. Special parking is also available on a temporary basis.

Financial Information

Tuition is priced on the basis of credit hour unless contact hour is different. Tuition is then based on the listed contact hour.

Tuition and Fee Information:
Registration (non-refundable) \$ 25.00
Undergraduate Tuition \$105.00 (per credit/contact hour)
Undergraduate Audit \$105.00 (per credit/contact hour)
Graduate Tuition (per credit/contact hour) \$150.00
Late Registration Fee \$ 10.00
Laboratory Fee (non-refundable) \$ 45.00 unless cancelled by DCE)

Tuition Refund
Any eligibility for tuition refund is based on the academic calendar, not class attendance, and is prorated as follows excluding fees:
Withdrawal before first class meeting 100%
Before the second class meeting 90%
Before the third class meeting 50%
After the third class meeting no refund

Fees and tuition will be refunded in full if Continuing Education is responsible for cancellations. Students who have checks returned due to insufficient funds will be charged an additional \$15.00 for the processing of their registration.

Tuition Refund Policy for Noncredit Courses
Participants who withdraw before the first class meeting will receive the total amount paid excluding the \$15.00 registration fee.
Before the second class meeting 50%
After the second class meeting no refund

Directed Studies Available
Directed studies are considered Special Programs, and as such, tuition remission and certificates of eligibility cannot be accepted.

Veterans' Information
Veterans must have all appropriate paperwork on file in the Office of Enrollment Services, including a DD214, an Admission Application form, and official transcripts from other colleges in order to receive VA benefits. Waivers cover full tuition but do not cover registration and other fees. In addition, veterans requesting benefits must check the appropriate line on the registration form.

Third Party Payment
All students using company direct payment, military plans, state tuition waivers, or veterans' waivers must include the appropriate forms or authorizing letters with their registration, or have them on file. No tuition refund is awarded for late submission of eligibility form. Students receiving company reimbursement must prepay their own tuition.

Senior Citizens
Senior citizens (60 years or older) may attend classes in continuing education credit programs tuition-free provided that there are sufficient tuition paying students enrolled to bear the cost of instruction and provided there is space available. Please note that waivers are not retroactive and do not cover registration and other fees.

In registering for courses, each student assumes full responsibility for knowledge of and compliance with the definitions, regulations, and procedures for the University as set forth in the appropriate publications and bulletins.

SUMMER SCHOOL 1994: Academic Calendar

Summer Session I: May 23 - June 30, 1994

Classes scheduled for Periods 1 through IV (Day) begin on Monday May 23.
M/W classes scheduled for Periods V and VI (Evening) begin on Monday May 23.
T/TH classes scheduled for Periods V and VI (Evening) begin on Tuesday May 24.

May 30-Memorial Day observed.

Mail-In Registration April 11 - May 6
Phone-In Registration April 11 - May 13
Office Walk-In Registration April 11 - May 13

General Registration May 16, 17, 18, 9:00 am. to noon and 5:30 to 8:00 pm in Cumnock Auditorium

Late Registration Please refer to specific calendars for qualifications on registration.
May 23, 7:30 a.m.-noon and 5:30-8:00 p.m. in the Office of Enrollment Services
May 24, 25, 9:00 a.m.-noon and 5:30-8:00 p.m. in the Office of Enrollment Services

Scheduled Periods

Period I	7:30 a.m. to 9:30 a.m.
Period II	9:45 a.m. to 11.45 a.m.
Period III	12 noon to 2:00 p.m.
Period IV	2:15 p.m. to 5:15 p.m.
Period V	6:00 p.m. to 9:00 p.m.
Period VI	7:00 p.m. to 10 p.m.

Periods I through III Meet M-Th for a 3 credit course, and M-F for a 4 credit or 4 contact hour course unless otherwise indicated in course listing.
TBA (see course listing)
Period IV M/W, meet twice a week plus Friday, May 27, June 3, June 17. TU/TH, meet twice a week plus Friday, June 10, and June 24

Periods I through IV (May 23 - June 30)

Last day to add lab May 24
Last day for partial refund May 25 (before the 3rd class meeting)
Last day to change enrollment status, add, drop course without record May 26
Last day to withdraw with "W" notation June 8 (before the 10th class meeting) for a 3 credit course;
June 6 for a 4 credit course
Final Examination June 29 for a three credit course. June 30 for a four credit course

Periods V and VI (May 23 - June 30)

Final Drop/Add and Last day for partial refund M/W, May 27, Friday (before the third class meeting) T/TH, May 31 (before the third classmeeting)
Last day to withdraw with "W" notation M/W, June 13 (before the 8th class meeting) T/TH, June 14 (before the 8th class mting)
Final Examinations M/W Wed. June 29, 7 p.m. T/TH Thur. June 30, 7 p.m.

Please note:
M/W, meet twice a week plus Friday, May 27, June 3, June 17
TU/TH, meet twice a week plus Friday, June 10, and June 24

Summer Session II July 11-August 19

Classes scheduled for Periods 1 through IV (Day) begin on Monday July 11.
M/W classes scheduled for Periods V and VI (Evening) begin on Monday July 11.
T/Th classes scheduled for Periods V and VI (Evening) begin on Tuesday July 12.

Mail-In Registration April 11-June 24
Phone-In Registration April 11-June 24
Office Walk-In Registration April 11-June 29

General Registration July 11, 7:30 a.m. to noon and 5:30 p.m. to 8:00 p.m. in the Office Enrollment Services

Late Registration July 12-13, 9:00 a.m. to noon and 5:30 p.m. to 8:00 p.m. in the Office of Enrollment Services. July 14, 5:30-8:00 p.m. (for evening classes only) in the Office of Enrollment Services.

Scheduled Periods:

Period I	7:30 a.m. to 9:30 a.m.
Period II	9:45 a.m. to 11.45 a.m.
Period III	12 noon to 2:00 p.m.
Period IV	2:15 p.m. to 5:15 p.m.
Period V	6:00 p.m. to 9:00 p.m.
Period VI	7:00 p.m. to 10 p.m.

Periods I through III Meet M-Th for a 3 credit course, and M-F for a 4 credit or a 4 contact hour course, unless otherwise indicated in course listing.
TBA (see course listing)
Period IV M/W, meet twice a week plus Friday July 29 and Friday August 19. T/TH meet twice a week plus Friday August 5 and Saturday August 20

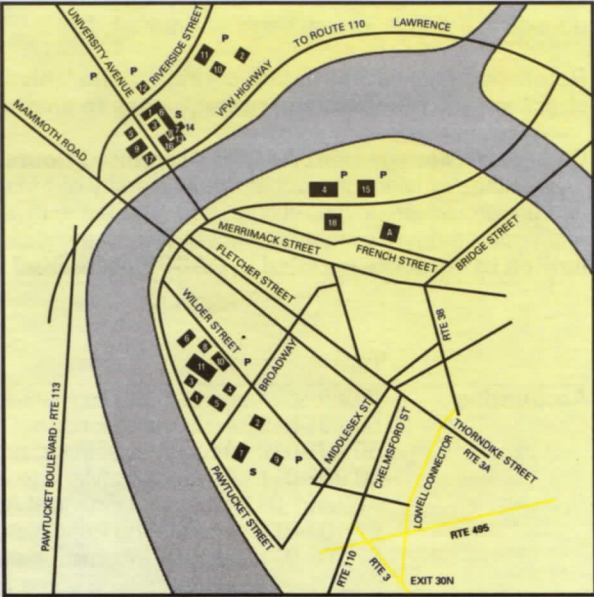
Periods I through IV (July 11 - August 17, 1994)

Last day to add a lab July 12
Last day for partial refund July 13 (before the 3rd class refund meeting)
Last day to change enrollment status, add, drop course without record July 14 (before the 4th class meeting)
Last day to withdraw with "W" notation July 26 (before the 10th class meeting) for a three credit course;
July 22 (before class) for a four credit course
Final Examinations August 16 for a 3 credit course; August 17 for a 4 credit course

Periods V and VI (July 11 - August 20, 1994)

Last day for partial refund and final Drop/Add M/W, July 18 (before the third class meeting) T/TH, July 19 (before the third class meeting)
Last day to withdraw with "W" notation M/W, August 1 (before the eighth class meeting) T/TH, August 4 (before the eighth class meeting)
Final Examinations M/W Fri. August 19, at 7 p.m. T/TH Sat. August 20, at 9 a.m.

Please note:
M/W, meet twice a week plus Friday, July 29, and Friday August 19
T/TH, meet twice a week plus Friday, August 5, and Saturday August 20



North	South
1 BL Ball Engineering Center	1 Allen Hall
2 Costello Gym	2 CO Coburn Hall
3 Cumnock Hall	3 Concordia Hall
4 Dormitories	4 Dining Hall
5 Eames Hall	5 DU Dugan Hall-Admissions
6 EB Engineering	6 DR Durgin Hall
7 FA Falmouth	7 MA Mahoney Hall
8 KI Kitson	8 O'Leary Library
9 Alumni/Lydon Library	9 Power Plant
10 EC Energy Center	10 Student Union
11 OH Olney	11 WH Weed Hall
12 OS Olsen	P Parking
13 PA Pasteur	
14 Power Plant	
15 Research Foundation	
16 SO Southwick Hall	
17 Smith Hall	
18 Fox Student Union	
P Parking	
S Security	

CONTINUING EDUCATION REQUEST FORM

Please send me:

☐ An undergraduate course catalog

☐ Information on admission into a Degree Program. (Please specify program)

☐ Information on admission into a Certificate Program. (Please specify program)

Name _____

Address _____

City State Zip _____

Telephone _____

Mail to:
Student Services/DCE
University of Massachusetts Lowell
One University Avenue
Lowell, MA 01854

SUMMER INSTITUTE ON MARRIAGE AND FAMILY THERAPY AND MENTAL HEALTH COUNSELING

The graduate psychology program at UMass Lowell is offering five courses this summer which can be used to fulfill licensing requirements as a marriage and family therapist or mental health counselor. These are graduate level courses and are open to students in a masters program or who have already received a master's degree from another institution and need additional course work for licensing. The courses are listed on page 11.

SUMMER SESSION I 1994

Classes scheduled for periods I-IV (day) begin on May 23, 1994. M/W classes scheduled for periods V and VI (evening) begin on May 23, 1994. T/Th classes scheduled for periods V and VI (evening) begin on May 24, 1994.

Reminder: This course listing combines the University of Massachusetts Lowell Day School Courses and the Continuing Education courses. It is important to check course numbers and prerequisites to ensure enrollment in the correct class.

College of Management AACSB Accredited Courses

The College of Management at the University of Massachusetts Lowell is accredited by the American Assembly of Collegiate Schools of Business (AACSB) at the graduate and undergraduate level. All courses preceded with + should be acceptable towards any AACSB accredited program and transfer to the College of Management's M.B.A. and undergraduate programs without any restrictions, provided the student has fulfilled all prerequisites prior to taking the course. **These courses marked with + are limited to students enrolled in AACSB accredited programs.**

	No.	Title	Period	Eve.	Credit (Contact Hours)	P: Prerequisite C: Corequisite/Comments	Instructor
Accounting	(For restrictions on courses marked +, refer to page 4 under College of Management AACSB Accredited Courses.)						
	60.201-011	Accounting/Financial	II		3		Samuel Chesler
	60.201-012	Accounting/Financial	VI	M/W	3		Charles Feeney
	60.202-011	Accounting/Managerial	III		3	P: 60.201	Samuel Chesler
	+60.401-011	Advanced Financial Accounting	II		3	P: 60 credits and 60.302	John Hamer
	67.101-011	Accounting Principles I	VI	M/W	3		Charles Thompson
	67.209-011	Federal Income Taxes	VI	T/Th	3	P: 67.102	Frank Padellaro
	60.201 is for students with some accounting/business experience.						
	67.101 is for students with no accounting experience.						
	Students may not receive credit for both 60.201 and 67.101.						
Art	The above courses with the 67 prefix are not intended for matriculating University of Massachusetts Lowell day students and will not transfer into the College of Management Day Programs.						
	CERTIFICATE IN ACCOUNTING (See page 15 for required courses.)						
	70.496-001	Practicum in Studio Art		TBA	3	P: instr. perm. or Department Chair	Departmental Staff
	79.494-001	Directed Study in Art History		TBA	3	P: permission of Liana Cheney	Liana Cheney
	79.496-001	Practicum in Art History		TBA	3	P: permission of Liana Cheney	Liana Cheney
	35.211-011	Basic Clinical Micro. and Pathology	II		3	P: 35.102, 35.104; C: 35.213	Jacob Lam
	35.213-011	Basic Clinical Micro. and Pathology Lab (Lab Fee) (M, T, W: 12 noon-3:00 pm)			1 (3)	P: 35.102, 35.104; C: 35.211	Jacob Lam
	81.215-011	Introduction to Marine Biology	I		3	C: 81.217	Larry Lewis
	81.217-011	Intro. to Marine Biology Lab (M, W, Th)(Lab Fee)	II		1 (3)	C: 81.215	Larry Lewis
	83.101-011	Life Science I	II		3	C: 83.103, Area III	Siu-Lam Lee
Biological Sciences	83.101-012	Life Science I	VI	M/W	3	C: 83.103, Area III	Gail Skinner-Brassard
	83.103-011	Life Science I Lab (Lab Fee)	IV		1 (2)	C: 83.101, Area III	Siu-Lam Lee
	83.103-012	Life Science I Lab (Lab Fee)	VI	T/Th	1 (2)	C: 83.101, Area III	Departmental Staff
	10.203-011	Chemical Engineering Calculations I	II		3	P: 84.122	Departmental Staff
	10.347-011	Elements of Thermodynamics and Heat Transfer	I		3	P: 92.132, 95.141	Departmental Staff
	84.111-011	General Chemistry I	III		3	C: 84.113	Susan McFarland
	84.113-011	General Chemistry Lab I (Lab Fee)	IV		1 (3)	C: 84.111	Susan McFarland
	84.121-011	Chemistry I	III		3	P: Science, Engineering and Eng. Technology majors only; others with dept. permission; C: 84.123	Departmental Staff
	84.121-012	Chemistry I	V	M/W	3	P: Science, Engineering and Eng. Technology majors only; others with dept. permission; C: 84.123	Peter Gabriel
	84.122-011	Chemistry II	II		3	P: 84.121, Science, Engineering and Eng. Technology majors only; others with dept. permission; C: 84.124	Departmental Staff
Chemical and Nuclear Engineering	84.122-012	Chemistry II	VI	T/Th	3	P: 84.121, Science, Engineering and Eng. majors only; others with dept. permission	Philip Lamprey
	84.123-011	Chemistry Lab I (Lab Fee)	IV		1 (3)	C: 84.121	Departmental Staff
	84.124-011	Chemistry Lab II (Lab Fee)	IV		1 (3)	P: 84.123, C: 84.122	Departmental Staff
	84.221-011	Organic Chemistry I	II		3	P: 84.122, 84.124; C: 84.227 or 84.229	William Bannister
	84.223-011	Principles of Organic Chemistry I	VI	T/Th	3	P: 84.122; C: 84.225	Departmental Staff
	84.225-011	Principles of Organic Chemistry Lab I (Lab Fee)	V	M/W	1 (4)	C: 84.223	Departmental Staff
	84.229-011	Organic Chemistry Lab I (Lab Fee)	IV		1 (4)	C: 84.221	William Bannister
	86.131-011	Environmental Chemistry I	VI	M/W	3		Charles Panagiotakos
	52.378-011	Italian Cinema and Culture	III		3	Area II, Human Values	Mario Aste
	14.350-011	Structural Analysis I	II		3 (4)	P: 14.204	Departmental Staff
Civil Engineering	14.470-011	Civil Engineering Economics	II		3	P: 49.201 or 49.202	Departmental Staff
	14.475-011	Construction Management	VI	M/W	3	P: Senior status	Departmental Staff
	22.213-011	Dynamics	II		3	P: 22.211, 92.225 or 92.231; can be taken by Civil Eng. students	Departmental Staff
	15.113-011	CAD (Lab Fee)	VI	T/Th	2 (3)	P: 23.101	Departmental Staff
	15.246-011	Fluid Mechanics/Hydraulics	VI	T/Th	3	P: 15.237 or 23.221	Jan Morrill
	15.340-011	Hazardous Waste Management	VI	M/W	3		Peter Matonis
	23.221-011	Statics (replaces 15.237)	VI	M/W	3	P: 92.125, 92.263, 99.131; C: 92.126	Marilynn Keppler
	CERTIFICATE IN ENVIRONMENTAL TECHNOLOGY (See page 13 for required courses.)						
	15.263-011	Waste Treatment Lab I (Lab Fee)	VI	T/Th	1 (3)	C: 15.261	Charles Panagiotakos
	15.280-011	Industrial Waste Treatment	VI	M/W	3		D. Burford/D. Pottle
Civil Engineering Technology	86.131-011	Environmental Chemistry I	VI	M/W	3		Charles Panagiotakos
	CERTIFICATE IN WATER TREATMENT (See page 15 for required courses.)						
	CERTIFICATE IN WASTEWATER TREATMENT (See page 15 for required courses.)						
	90.172-011	Application Software: Windows (Lab Fee)	VI	M/W	3	P: 92.267 or 92.268	Stephan Pilot
	90.476-011	Introduction to Novelle Netware	VI	M/W	3		Departmental Staff
	92.202-011	Microcomputers and Applications Software (Lab Fee)	I		3		Susan L'Italien
	92.202-012	Microcomputers and Applications Software (Lab Fee)	V	T/Th	3		Departmental Staff
	92.202-013	Microcomputers and Applications Software (Lab Fee)	V	M/W	3		Michael Beaulieu
	92.202-014	Microcomputers and Applications Software (Lab Fee)	VI	T/Th	3		Dennis Roffman
	92.211-011*	Introduction to Programming with C (Lab Fee)	VI	T/Th	3	P: 92.121 or equivalent	Richard Desroches
Civil Engineering Technology: Water/Wastewater Option	92.219-011	BASIC Programming (Lab Fee)	VI	T/Th	3	P: 90.111 or working knowledge of another programming language or E.E.T. major	Ralph D'Amelio
	92.263-011	FORTAN Programming (Lab Fee)	VI	T/Th	3	P: 90.112 or 92.121 or equivalent	James Brzowski
	92.265-011	Pascal Programming (Lab Fee)	II		3	P: 90.112 or 92.121 or equivalent, Area III	Ann Marie Hurley
	92.265-012	Pascal Programming (Lab Fee)	VI	M/W	3	P: 90.112 or 92.121 or equivalent, Area III	James Brzowski
	92.267-011*	C Programming (Lab Fee)	III		3	P: 92.265	Ann Marie Hurley
	92.267-012*	C Programming (Lab Fee)	VI	M/W	3	P: 92.265	Paul Farrell
	92.267-013*	C Programming (Lab Fee)	VI	M/W	3	P: 92.265	James Murphy
	92.267-014*	C Programming (Lab Fee)	V	T/Th	3	P: 92.265	Timothy Niesen
	92.267-015*	C Programming (Lab Fee)	VI	T/Th	3	P: 92.265	Departmental Staff
	92.267-016*	C Programming (Lab Fee)	VI	T/Th	3	P: 92.265	Departmental Staff

SUMMER SESSION I 1994 (Continued)

	92.268-011	C++ Programming (Lab Fee)	VI	T/Th	3	P: 92.267	Departmental Staff
	92.268-012	C++ Programming (Lab Fee)	V	M/W	3	P: 92.267	Lance Smith
	92.311-011	Intro. to the UNIX Operating System(Lab Fee)I			3	P: 92.267 or 92.211 and 92.364	Sean McGowan
	92.311-012	Intro. to the UNIX Operating System(Lab Fee) VI		M/W	3	P: 92.267 or 92.211 and 92.364	Andrew Garside
	92.311-013	Intro. to the UNIX Operating System(Lab Fee) VI		T/Th	3	P: 92.267 or 92.211 and 92.364	Thomas Burns
	92.312-011	UNIX Shell Programming (Lab Fee)	V	T/Th	3	P: 92.311	Michael Richards
	92.312-012	UNIX Shell Program (6:30-9:30pm) (Lab Fee)		T/Th	3	P: 92.311	Michael DeMarco
	92.313-011	UNIX Internals Overview (Lab Fee)	VI	M/W	3	P: 92.312	Steven Bower
	92.360-011	Introduction to Data Structures/C (Lab Fee)	VI	M/W	3	P: 92.267 and 92.321 or 92.211 and 92.364	Departmental Staff
	92.363-011	Introduction to Data Analysis (SPSS) (Lab Fee)	II		3	P: 92.183 or equivalent	Alexander Olsen
	92.364-011	Problem Solving with C (Lab Fee)	VI	M/W	3	P: 92.211 or 92.267	Sean McGowan
	92.365-011	COBOL Programming I (Lab Fee)	VI	M/W	3	P: P: 92.209 or 92.219	Thomas Flaherty
	92.455-011	Assembly Language Programming I (Lab Fee)V		T/Th		P: 92.263 or 92.265 or 92.267	Antonio Gellineau
	92.470-011	Data Telecommunications (Lab Fee)	VI	M/W	3	P: 92.265, 92.360	Steven Moro
	92.473-011	Computer Network Architecture/Protocol	V	T/Th	3	P: 92.472	Alan Wu
	92.474-011	Data Base Concepts (Lab Fee)	VI	T/Th	3	P: 2 semesters of a higher level lang. excluding BASIC	Walter Cinsavich
	92.475-011	Communication Network Management (Lab Fee)	V	M/W	3	P: 92.472	Raymond Vigeant
	92.477-011	Information Systems I	VI	T/Th	3	P: Junior status	R. L. Pitcher
	*Students may not receive credit for both 92.211 and 92.267						
	CERTIFICATE IN COMPUTER PROFICIENCY (See page 15 for required courses.)						
	CERTIFICATE IN DATA COMMUNICATIONS (See page 15 for required courses.)						
	CERTIFICATE IN UNIX (See page 14 for required courses.)						
Computer Science	91.102-011	Computing II (Lab Fee)	II	M/W/F	4	P: 91.101 or Chair permission	James Canning
	91.350-011	Data Structures, Algorithms, and C (Lab Fee) (May 23-July 29) (6:00-8:00 pm)		M/Th	3		J. Canning/P. Weston
Criminal Justice (also see Paralegal Studies)	44.101-011	The Criminal Justice System	II		3		James Byrne
	44.111-011	Introduction to Industrial Security	VI	M/W	3		John Pignato
	44.201-011	Computer Applications in Criminal Justice (Lab Fee)II			3		Joseph Lipchitz
	44.221-011	Criminology I	II		3		Alan Lincoln
	44.234-011	Criminal Law	VI	M/W	3		Anthony Petrosino
	44.261-011	Juvenile Delinquency	VI	T/Th	3		James Byrne
	44.380-011	Selected Issues: Russian Police	TBA		3	Off-campus, instructor permission	Eve Buzawa
	44.423-011	ELITE Deviance	VI	T/Th	3		Stephen Sacco
	44.493-011	Computer Crime and Security	I		3	P: 44.221 or instructor permission	Joseph Lipchitz
	44.496-011	Criminal Justice Practicum	TBA		3	P: Jrs. and srs. in Criminal Justice only	Alan Lincoln
	CERTIFICATE IN SECURITY MANAGEMENT (See page 13 for required courses.)						
Economics	49.201-011	Economics I (Microeconomics)	II		3	Area I	Carol McDonough
	49.201-012	Economics I (Microeconomics)	VI	M/W	3	Area I	George Dery
	49.202-011	Economics II (Macroeconomics)	II		3	Area I	Departmental Staff
	49.202-012	Economics II (Macroeconomics)	VI	T/Th	3	Area I	Ernesto Sanz
	49.211-011	Statistics I	II		3	P: 92.122 or equivalent	Paul Snoonian
	49.211-012	Statistics I	VI	T/Th	3	P: 92.122 or equivalent	Paul Snoonian
	49.212-011	Statistics II	II		3	P: 49.211	George Dery
	49.307-011	Government and Business	II		3	P: 49.201, 49.202, Area I	Albert Cederlund
Electrical Engineering	16.202-011	Introduction to Circuit Theory II (Mon., Tues., Thurs., Fri.: 9:30 am-12:00 noon)			4	P: 16.201, 95.245; C: 16.208	Paul Murphy
	16.208-011	Basic E. E. Lab II (Lab Fee) Lecture: Tues. and Fri.: 1:00-1:50 pm Lab: Mon. and Thurs.: 1:30-4:30 pm			2 (4)	P: 16.207; C: 16.202	Paul Murphy
	16.409-011	Project Lab (Lab Fee)	TBA		3	P: Instructor permission	Ziyad Salameh
	16.442-011	Engineering Applications of C++ Prog.	II		3	P: 16.217; (1.5 ED)	Russell Laste
	16.461-011	EMAG Theory II	III		3	P: 16.360, 16.315	Stephen Spurk
Electronic Engineering Technology	17.130-011	Electrical Basics and Laboratory	VI	T/Th	2(3)	P: 42.226, 92.115, 92.219, or 92.263, 99.132	Thomas Coffey
	17.133-011	Electro-optics an Overview	VI	T/Th	3		Val Bykovsky
	17.492-011	Diagnostic Programming	VI	M/W	3	P: 17.383, 92.265 or 92.267	Philip Arrigo
English	42.101-011	College Writing I	I		3		Departmental Staff
	42.101-012	College Writing I	VI	M/W	3		William Coughlin
	42.102-011	College Writing II	II		3	P: 42.101	Donald Berry
	42.102-012	College Writing II	VI	T/Th	3	P: 42.101	David Landman
	42.103-011	College Writing I for International Students	I		3		Linda Berube
	42.103-012	College Writing I for International Students	VI	M/W	3		June Tumblin
	42.201-011	Great Books of Antiquity	I		3	P: 42.102, Area II	Donald Berry
	42.212-011	The Short Story	III		3	P: 42.102, Area II	Departmental Staff
	42.224-011*	Business Writing	VI	M/W	3	P: 42.102	Departmental Staff
	42.226-011*	Technical and Scientific Communication	VI	T/Th	3	P: 42.102	Dirk Messelaar
	42.227-011	Essay Writing for English Majors	II		3	P: 42.102	William Hersey
	42.267-011	Introduction to Shakespeare	VI	M/W	3	P: 42.102, Area II	Roger Wiehe
	42.294-011	History of American Literature I	VI	T/Th	3	P: 42.102, Area II	Robert Griffin
	42.302-011	Creative Writing: Fiction	VI	M/W	3		Terri Ferrish
	42.303-011	Creative Writing: Poetry	VI	T/Th	3		J. Dickerson-Nelson
	42.318-011	American Literature of the 20th Century	VI	M/W	3	P: 42.102	Joseph Zaitchik
	42.320-011	Personal and Reflective Writing	VI	T/Th	3	P: 42.102	William Hersey
	42.411-011	Desktop Publishing Laboratory (Lab Fee)	VI	M/W	1 (3)		Departmental Staff
	59.206-011	Human Values in Western Culture II	VI	T/Th	3	Area II, Human Values	Departmental Staff
	*Please note that students may not receive credit for both 42.224 and 42.226.						
Environmental Sciences	89.101-011	General Geology I	I		3	Area III	Arnold O'Brien
Environmental Technology	(See offerings under Civil Engineering Technology, Chemistry, Environmental Sciences, Political Science, and Water/Wastewater Option)						
Finance	CERTIFICATE IN ENVIRONMENTAL TECHNOLOGY (See page 13 for required courses.)						
	(For restrictions on courses marked +, refer to page 4 under College of Management AACSB Accredited Courses.)						
	+61.301-011	Business Finance	VI	M/W	3	P: 60.202, 49.201, 49.202, and 60 credits	David Echevarria
Health Professions	30.201-011	Community Health	V	T/Th	3		J. Douglass/P. Tyra
	30.315-011	Kinesiology and Lab (Lab Fee)	II	M-F	4 (6)	P: All freshmen, sophomore E.P. courses and 1 year of A. and P., and 1 year of Physics	Joseph Dorsey
	35.101-011	Human Anatomy and Physiology I	II		3	C: 35.103	Ted Namm
	35.103-011	Human Anatomy and Physiology I Lab (Mon., Tues., Thurs.: 1:00-4:00 pm) (Lab Fee)			1 (3)	C: 35.101	Alease Bruce
	35.211-011	Basic Clinical Microbiology and Pathology	II		3	P: 35.102, 35.104; C: 35.213	Jacob Lam
	35.213-011	Basic Clinical Microbiology and Pathology (M, T, W: 12 noon-3:00 pm) Lab (Lab Fee)			1 (3)	P: 35.102, 35.104; C: 35.211	Jacob Lam
	35.356-011	Pharmacology (Mon. and Wed.: 12 noon-4:00 pm)			3	P: Junior level	Arthur Vergados
	36.350-011	Human Biochemistry (Mon.-Thurs.: 8:00-10:00 am)			3	P: 35.252 or equivalent	Kay Doyle
History	43.105-011	Western Civilization to 1715	VI	M/W	3	Area II	Harry Hubbard
	43.112-011	U.S. History Since 1877	I		3	Area II	Dean Bergeron
	43.279-011	History of Lowell (also classes on Sat., June 4, and Sun., June 24)	VI	T/Th	3		Martha Norkunas
	43.356-001	Civil War and Reconstruction	VI	T/Th			William Jordan
	43.364-011	War and Cold War: U.S. History in the 1940's and 1950's	VI	M/W	3	Area II	Mark Kosinski

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Industrial Technology	(See separate listings under Manufacturing, Plastics, and Civil Engineering Technology: Water/Wastewater Options)						
Intercollegiate Liberal Arts	59.206-011	Human Values in Western Culture II	VI	T/Th	3	Area II, Human Values	Departmental Staff
Languages	59.208-011	Western Cultural Heritage I	II		3	Area II	Mario Aste
	50.211-011	Intermediate Conversational French I	VI	T/Th	3	P: 50.102 or equivalent, Area II	Departmental Staff
	51.211-011	Intermediate German I	VI	T/Th	3	P: 51.102, Area II	Robert Whelan
	51.351-011	Twentieth Century: German Short Prose	VI	M/W	3	P: P: 51.101, 51.102, instructor permission	Robert Whelan
	52.378-011	Italian Cinema and Culture	III		3	Area II, Human Values	Mario Aste
	53.101-011	Beginning Japanese I	VI	T/Th	3		Departmental Staff
	53.103-011	Beginning Russian I	VI	M/W	3		Rachel Rubin
	54.101-011	Beginning Spanish I	I		3		Heli Hernandez
	54.101-012	Beginning Spanish I	VI	M/W	3		John Staulo
	54.101-013	Beginning Spanish I	VI	M/W			Maria Castro
	54.211-011	Intermediate Conversational Spanish I	II		3	P: 54.102 or equivalent, Area II	Heli Hernandez
	54.211-012	Intermediate Conversational Spanish I	VI	T/Th	3	P: 54.102 or equivalent, Area II	Maria Castro
	54.211-013	Intermediate Conversational Spanish I	VI	T/Th		P: 54.102 or equivalent, Area II	John Staulo
	59.208-011	Western Cultural Heritage I	II		3	Area II	Mario Aste
Legal Studies	41.262-011	Introduction to Business Law	II		3		William Burke
(Also see	41.262-012	Introduction to Business Law	VI	T/Th	3		William Burke
Paralegal Studies.)	41.363-011	Corporate and Property Law	VI	T/Th	3		Russell Karl
	41.366-011	International Law	VI	M/W	3		Michael Jones
	41.367-011	Environmental Law and Regulations	VI	T/Th	3		Departmental Staff
	41.370-011	Real Estate Law	III		3		Departmental Staff
	41.370-012	Real Estate Law	VI	T/Th	3		Departmental Staff
	41.376-011	Family Law	I		3		Russell Karl
	41.376-012	Family Law	VI	M/W	3		Departmental Staff
	41.381-011	Women in the Law	VI	T/Th	3		Jane McElligott
	41.383-011	Alternative Dispute Resolution	VI	M/W	3	(Course does not qualify as an elective for Paralegal Certificate students)	Daniel Wojick
	41.387-011	Legal Research Methods (Lab Fee)	VI	M/W	3		Jane McElligott
	41.390-011	Litigation	VI	T/Th	3		Michael Martell
Management	(For restrictions on courses marked +, refer to page 4 under College of Management AACSB Accredited Courses.)						
	+66.301-011	Organizational Behavior (9:45 am-12:45 pm)		M/W	3	P: 60 credits	Stuart Freedman
	+66.435-011	Comparative Management (May 31-June 17) (9:45 am-12:45 pm)		M-F	3	P: 60 credits and 66.301	David Lewis
	+66.490-011	Strategic Management	VI	TBA	3	P: 61.301, 62.201, 63.371, 66.301, and 96 credits	Departmental Staff
	69.231-011	Business Finance	VI	M/W	3	P: 67.102, 49.201, 49.202	Mel Epstein
	69.271-011	Operations Management	VI	M/W	3	P: 49.211	George Liaw
	NOTE: The above courses with 69 prefixes are not intended for matriculating University of Massachusetts Lowell day students and will not transfer into the College of Management day programs.						
	CERTIFICATE IN PURCHASING MANAGEMENT (See page 15 for required courses.)						
Manufacturing Option	23.101-011	Engineering Graphics I (replaces 20.105)	VI	T/Th	2 (3)		Mitchell Keamy, Sr.
	23.200-011	CADrf (replaces 20.209) (Lab Fee)	VI	M/W	3	P: 23.102	Robert Maffia
	23.221-011	Statics	VI	M/W	3	P: 92.125, 99.131, 92.263; C: 92.126	Marilynn Keppler
	23.419-011	CAM (Lab Fee)	VI	T/Th	3	P: 23.305 or 23.306	David lerardi
	23.480-011	CADes (Lab Fee)	VI	M/W	3	P: 23.200, 23.354	Prasanna Godbole
	CERTIFICATE IN MANUFACTURING TECHNOLOGY (See page 14 for required courses.)						
Marketing	(For restrictions on courses marked +, refer to page 4 under College of Management AACSB Accredited Courses.)						
	62.201-011	Marketing Principles	VI	T/Th	3	P: 47.101, 48.101, 49.201	Jay Beaulieu
	62.302-011	Marketing Research	III		3	P: 62.301, 60 credits	Eunsang Yoon
Mathematics	90.111-011*	Fundamentals of Algebra	VI	T/Th	3		Cyril Pipan
	90.112-011***	Concepts in Algebra I	VI	T/Th	3	P: 90.111 or Placement exam**	Anthony Sokolowski
	92.110-011	College Algebra	III		3	Liberal Arts majors only, Area III	Stanley Spiegel
	92.111-011	Mathematical Perspectives	II		3	Liberal Arts majors only, Area III	Stanley Spiegel
	92.115-011	College Trigonometry	VI	T/Th	3	P: 92.121	Alan Gibbs
	92.121-011***	Precalculus Mathematics	I		3	Area III	Departmental Staff
	92.121-012***	Precalculus Mathematics	II		3	Area III	Departmental Staff
	92.121-013***	Precalculus Mathematics	VI	T/Th	3	P: 90.111 or placement exam**, Area III	Richard Hickey
	92.122-011	Differential Calculus	I		3	P: 92.121, Area III	Leonard Andrusaitis
	92.122-012	Differential Calculus	II		3	P: 92.121, Area III	Leonard Andrusaitis
	92.125-011	Calculus A	VI	T/Th	3	P: 92.115	Robert Gravina
	92.126-011	Calculus B	VI	T/Th	3	P: 92.125	Robert Fradette
	92.127-011	Calculus IA	II		4		Departmental Staff
	92.128-011	Calculus IB	II		4	P: 92.127	Roger McLeod
	92.131-011	Calculus I	II		4		Departmental Staff
	92.131-012	Calculus I	I		4		Alan Kaplan
	92.132-011	Calculus II	I		4	P: 92.131	Marvin Stick
	92.132-012	Calculus II	II		4	P: 92.131	Marvin Stick
	92.132-013	Calculus II	II		4	P: 92.131	Alan Kaplan
	92.183-011	Introduction to Statistics	I		3	P: 90.111 or equivalent, Area III	Alexander Olsen
	92.183-012	Introduction to Statistics	VI	T/Th	3	P: 90.111 or equivalent, Area III	Departmental Staff
	92.201-011	Integral Calculus	I		3	P: 92.122, Area III	Ashot Shahinian
	92.201-012	Integral Calculus	II		3	P: 92.122, Area III	Departmental Staff
	92.202-011	Introduction to Microcomputers and Applications Software (Lab Fee)	I		3		Susan L'Italien
	92.202-012	Introduction to Microcomputers and Applications Software (Lab Fee)	V	T/Th	3		Departmental Staff
	92.202-013	Introduction to Microcomputers and Applications Software (Lab Fee)	V	M/W	3		Michael Beaulieu
	92.202-014	Introduction to Microcomputers and Applications Software (Lab Fee)	VI	T/Th	3		Dennis Roffman
	92.225-011	Calculus C	VI	T/Th	3	P: 92.126	Philip Breen
	92.226-011	Calculus D	VI	T/Th	3	P: 92.225	Dorothy Greenler
	92.231-011	Calculus III	II		4	P: 92.132	Pasquale Condo
	92.231-012	Calculus III	III		4	P: 92.132	Pasquale Condo
	92.234-011	Differential Equations	II		3	P: 92.132 or 92.225	Departmental Staff
	92.234-012	Differential Equations	VI	T/Th	3	P: 92.132 or 92.225	Rida Mirie
	92.234-013	Differential Equations	VI	T/Th	3	P: 92.132 or 92.225	Y. Q. Yin
	92.263-011	FORTTRAN Programming (Lab Fee)	VI	T/Th	3	P: 90.112 or 92.121 or equivalent	James Brzowski
	92.265-011	Pascal Programming (Lab Fee)	II		3	P: 90.112 or 92.121 or equivalent, Area III	Ann Marie Hurley
	92.265-012	Pascal Programming (Lab Fee)	VI	M/W	3	P: 90.112 or 92.121 or equivalent, Area III	James Brzowski
	92.267-011***	C Programming (Lab Fee)	III		3	P: 92.265	Ann Marie Hurley
	92.267-012***	C Programming (Lab Fee)	VI	M/W	3	P: 92.265	Paul Farrell
	92.267-013***	C Programming (Lab Fee)	VI	M/W	3	P: 92.265	James Murphy
	92.267-014***	C Programming (Lab Fee)	V	T/Th	3	P: 92.265	Timothy Niesen
	92.267-015***	C Programming (Lab Fee)	VI	T/Th	3	P: 92.265	Departmental Staff
	92.268-011	C++ Programming (Lab Fee)	VI	T/Th	3	P: 92.267	Departmental Staff
	92.268-012	C++ Programming (Lab Fee)	V	M/W	3	P: 92.267	Lance Smith
	92.301-011	Introduction to Applied Mathematics I	II		3	P: 92.226 or 92.231	Departmental Staff
	92.305-011	Introduction to Real Analysis I	II		3	P: 92.221 and 92.225 or equivalent	James Graham-Eagle
	92.321-011	Discrete Structures I	II		3	P: 90.112 or 92.121	Alan Doerr
	92.321-012	Discrete Structures I	VI	T/Th	3	P: 90.112 or 92.121	Anthony Penta
	92.322-011	Discrete Structures II	III		3	P: 92.321	Kenneth Levasseur
	92.362-011	Numerical Analysis I	II		3	P: a prog. lang. and 92.231, 92.234	Rida Mirie
	92.363-011	Introduction to Data Analysis (SPSSX)	II		3	P: 92.183 or equivalent	Alexander Olsen

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92.365-011	COBOL Programming I (Lab Fee)	VI	M/W	3	P: 92.209 or 92.219	Thomas Flaherty
92.386-011	Statistics for Engineering and Science	II		3	P: 92.126 or 92.132	Lee Jones
92.411-011	Complex Variables I	II		3	P: 92.231 or 92.226	Ashot Shahinian
92.416-011	Pattern Recognition and Neural Networks (5:30-8:30 pm)		M/W	3	P: 92.386/Linear Algebra, or equivalent	Lee Jones
92.420-011	Mathematical Problem Solving	V	T/Th	3	P: 92.226 or 92.231	Kenneth Levasseur
92.421-011	Abstract Algebra I	III		3	P: 92.221 or 92.321	Alan Doerr
92.450-011	Mathematical Modeling (5:30-8:30 pm)		M/W	3	P: Senior standing	James Graham-Eagle
92.480-011	Applied Combinatorics (5:30-8:30 pm)		M/W	3	P: Calculus and Discrete Structures	Y. Q. Yin

*Fundamentals of Algebra (90.111) is a preparatory course and cannot be credited toward a degree program at the University of Massachusetts Lowell.

**Placement exam is given the first evening of class.

***Students may not receive credit for both 90.112 and 92.121. Students may not receive credit for both 92.211 and 92.267.

Many 500-level courses are well within the grasp of upper level undergraduates and may be used as electives. Refer to the Graduate School listing and contact the Graduate School for admissions procedures. University of Massachusetts Lowell Day students must have approval from the mathematics coordinator before taking courses with a 90 prefix.

Mechanical Engineering	22.211-011	Mechanics I	TBA	3	P: 92.132 or 92.134 and 95.141	Departmental Staff
	22.295-011	Material Science and Engineering	TBA	3	P: 84.122, 95.144, 25.101, 25.102	Departmental Staff
	22.311-011	Applied Strength Materials	TBA	3	P: 22.212, 92.234, 22.295	Departmental Staff
	22.321-011	Mechanical Design I	TBA	3	P: 22.201, 22.213	Departmental Staff
	22.381-011	Fluid Mechanics	TBA	3	P: 22.212, 22.242, 92.234	Departmental Staff
	22.403-011	Mechanical Engineering Lab II (Tues. and Thurs.: 4:00-7:00 pm) (Lab Fee)		2 (3)	P: 22.302, 22.31, 22.354, 22.381	Departmental Staff
	22.421-011	Integrated Design	TBA	3	P: 22.322	Departmental Staff
All classes for Mechanical Engineering begin the week of May 23 and end July 8.						
Mechanical Engineering Technology	23.101-011	Engineering Graphics I	VI	T/Th	2 (3)	Mitchell Keamy, Sr.
	23.200-011	CADrf* (Lab Fee)	VI	M/W	3	Robert Maffia
	23.221-011	Statics	VI	M/W	3	Marilynn Keppler
	23.241-011	Elements of Thermodynamics I	VI	T/Th	3	Vernon Oliver
	23.419-011	CAM (Lab Fee)	VI	T/Th	3	David Ierardi
	23.480-011	CADes (Lab Fee)	VI	M/W	3	Prasanna Godbole
*Some additional projects are required for this course.						
Music	71.100-011	Fundamentals of Music (Music majors only)	VI	M/W	3	Music majors only
	71.102-011	Music Theory II	I		3	P: 71.101
	71.104-011	Solfege II	II		3	P: 71.103
	71.110-011	Basic Music Theory	II		3	Non-Music majors, Area II
	71.110-012	Basic Music Theory	VI	M/W	3	Non-Music majors, Area II
	71.201-011	Music Theory III	I		3	P: 71.102
	71.203-011	Solfege III	II		3	P: 71.104
	74.261-011	Survey of Music History I	I		3	John Ogasapian
	74.262-011	Survey of Music History II	II		3	John Ogasapian
	74.495-011	Directed Study in Music History		TBA	3	P: instructor permission
*For a listing of undergraduate Music Education courses offered this summer, please see the house ad on page 12.						
Paralegal	Please see admission requirements to the Paralegal Program on page 14. Courses are open only to students currently enrolled in the Paralegal Program. Courses are available to other students on a space available basis.					
	41.103-011	Introduction to Paralegal Studies	VI	T/Th	3	Patricia Hohl
	41.363-011	Corporate and Property Law	VI	T/Th	3	Russell Karl
	41.370-011	Real Estate Law	III		3	Departmental Staff
	41.370-012	Real Estate Law	VI	T/Th	3	Russell Karl
	41.387-011	Legal Research Methods (Lab Fee)	VI	M/W	3	Jane McElligott
	41.390-011	Litigation	VI	T/Th	3	Michael Martell
	44.497-011	Paralegal Practicum	TBA		3	P: minimum of three paralegal courses
	Please see additional Paralegal seminars offered on page 19.					
Philosophy	45.201-011	Introduction to Philosophy	III		3	Area II and Human Values
	45.201-012	Introduction to Philosophy	V	T/Th	3	Area II and Human Values
	45.202-011	Introduction to Logic	VI	M/W	3	Area II
	45.203-011	Introduction to Ethics	II		3	Area II and Human Values
	45.203-012	Introduction to Ethics	VI	T/Th	3	Area II and Human Values
Physics	95.103-011	General Physics I	II		3	P: Algebra; C: 96.103
	95.121-011	Exploring the Universe	I		3	C: 96.121, Area III
	95.141-011	Physics I	I		3 (4)	C: 92.131, 96.141
	95.144-011	Physics II	II		3 (4)	P: 95.141; C: 92.132, 96.144
	95.245-011	Physics III	II		3 (4)	P: 95.144, 92.132; ; C: 92.231, 96.245
	96.103-011	Experimental General Physics I (Lab Fee)	IV		1 (1.5)	C: 95.103 or 95.201
	96.141-011	Experimental Physics I (Lab Fee)	IV		1 (1.5)	C: 95.141
	96.144-011	Experimental Physics II (Lab Fee)	IV		1 (1.5)	P: 96.141; C: 95.144
	96.245-011	Experimental Physics III (Lab Fee)	IV		1 (1.5)	P: 96.144; C: 95.245
	99.131-011	Technical Physics I (Lab Fee)x (requires 2 additional evenings for a total of 16 meetings)	VI	T/Th	3 (3.5)	C: 92.125
Plastics Option	27.451-011	Selected Topics I	VI	M/W	3	P: Instructor permission
	27.452-011	Selected Topics II	VI	T/Th	3	P: Instructor permission
	27.459-011	Elements of Packaging	VI	M/W		Peter Baker
	27.301-011	Additives (U.S.C.I./Bard) (4:30-7:30 pm)		M/W	3	P: instructor or coordinator permission
	27.453-011	Selected Topics III: CAD/CAM	V	T/Th	3	P: instructor or coordinator permission
Courses with the 27 prefix are not eligible for graduate credit.						
CERTIFICATE IN PLASTICS ENGINEERING TECHNOLOGY (See page 15 for required courses.)						
Political Science	46.121-011	Introduction to International Relations	VI	M/W	3	Area I
	46.230-011	Law and the Legal System	VI	T/Th	3	
	46.357-011	Environmental Policy	II		3	Area I, Human Values, Cluster
Psychology	47.101-011	General Psychology	III		3	Area I
	47.101-012	General Psychology	VI	M/W	3	Area I
	47.209-011	Social Psychology	VI	T/Th	3	Area I, Human Values
	47.232-011	Psychology of Personality	VI	T/Th	3	P: Area I
	47.255-011	Community Psychology	I		3	Area I
	47.260-011	Human Development I	VI	T/Th	3	Area I
	47.269-011	Research Methods	VI	M/W	3	P: 47.101
	47.272-011	Abnormal Psychology	II		3	P: 47.101, Area I
	47.328-011	Dynamics of Interpersonal Relations	II		3	Area I
	47.328-012	Dynamics of Interpersonal Relations	VI	M/W	3	Area I
	47.335-011	Psychology of Women	II		3	Area I, Human Values
	47.360-011	Human Development II	I		3	P: 47.260
	47.474-011	Seminar in Developmental Psychology	VI	M/W	3	P: 47.260, 47.269 or instructor permission
Radiological Sciences	99.101-011	Radiation and Life	II		3	C: 99.102, Area III
	99.102-011	Radiation and Life Lab (Lab Fee)	IV		1 (2)	C: 99.101, Area III
Sociology	48.101-011	Introduction to Sociology	II		3	Area I
	48.101-012	Introduction to Sociology	VI	T/Th	3	Area I
	48.201-011	Social Anthropology	VI	M/W	3	Area I, Human Values
	48.231-011	Sociology of the Family	VI	T/Th	3	Area I
	48.240-011	Sociology of Mass Media	I		3	Area I, Human Values
	48.361-011	Sociology of Law	VI	M/W	3	
Technical Writing Certificate Program	(Technical Writing courses are open to undergraduate and graduate students.)					
	42.403-011	Advanced Software Writing (May 24-August 16; including June 10 and June 24)	VI	T	3	John Garison
CERTIFICATE IN TECHNICAL WRITING (See page 14 for required courses.)						
Water/Wastewater Option	(See Civil Engineering Technology: Water/Wastewater Option.)					

SUMMER SESSION II 1994 (Continued)

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Classes scheduled for periods I-IV (day) begin on July 11. M/W classes scheduled for periods V and VI (evening) begin on July 11 and T/Th classes scheduled for periods V and VI (evening begin) on July 12.

Reminder: This course listing combines the University of Massachusetts Lowell Day School courses and the Continuing Education courses. It is important to check course numbers and prerequisites to ensure enrollment in the correct class.

College of Management AACSB Accredited Courses

The College of Management at University of Massachusetts Lowell is accredited by the American Assembly of Collegiate Schools of Business (AACSB) at the graduate and undergraduate level. All courses preceded with + should be acceptable towards any AACSB accredited program and transfer to the College of Management's M.B.A. and undergraduate programs without any restrictions, provided the student has fulfilled all prerequisites prior to taking the course. These courses marked with + are limited to students enrolled in AACSB accredited programs.

Accounting	(For restrictions on courses marked +, refer to page 8 under College of Management AACSB Accredited Courses.)						
	60.202-021	Accounting/Managerial	VI	M/W	3	P: 60.201	John Keelan
	67.101-021	Accounting Principles I	VI	M/W	3		Anthony Carbone
	67.102-021	Accounting Principles II	VI	M/W	3	P: 67.101	Theresa Bickford
	60.202 is for students with some accounting/business experience. 67.101 is for students with no accounting experience. Students may not receive credit for both 60.201 and 67.101. The above courses with the 67 prefix are not intended for matriculating University of Massachusetts Lowell day students and will not transfer into the College of Management day programs. CERTIFICATE IN ACCOUNTING (See page 15 for required courses.)						
Art	79.494-021	Directed Study in Art History	TBA		3	P: permission of Liana Cheney	Liana Cheney
	70.496-021	Practicum in Studio Art	TBA		3	P: instructor permission or Department Chair	Departmental Staff
	79.496-021	Practicum in Art History	TBA		3	P: instructor permission	Liana Cheney
Biological Sciences	81.347-021	Human Nutrition	II		3	P: Introductory Biology or instr. perm.	Priscilla Mattson
	83.102-021	Life Science II	II		3	Area III; C: 83.104	Siu-Lam Lee
	83.102-022	Life Science II	VI	M/W	3	Area III; C: 83.104	Gail Skinner-Brassard
	83.104-021	Life Science II Lab (Lab Fee)	IV		1 (2)	C: 83.102, Area III	Siu-Lam Lee
Chemistry	84.112-021	General Chemistry II	III		3	P: 84.111, C: 84.114	Susan McFarland
	84.114-021	General Chemistry Lab II (Lab Fee)	IV		1 (3)	P: 84.113; C: 84.112	Departmental Staff
	84.122-021	Chemistry II	II		3	P: 84.121; Science, Engineering and Eng. Technology majors; others with dept. permission; C: 84.124	Peter Gabriel
	84.122-022	Chemistry II	V	M/W	3	P: 84.121; Science, Engineering and Eng. Technology majors; others with dept. permission; C: 84.124	Peter Gabriel
	84.124-021	Chemistry Lab II (Lab Fee)	IV		1 (3)	P: 84.123; C: 84.122	Philip Lamprey
	84.222-021	Organic Chemistry IIA	III		3	P: 84.221; C: 84.230	Departmental Staff
	84.230-021	Organic Chemistry Lab II A (Lab Fee)	IV		1 (4)	P: 84.229; C: 84.222	Departmental Staff
	86.132-021	Environmental Chemistry II	VI	M/W	3	P: 86.131	Charles Panagiotakos
	10.204-021	Chemical Engineering Calculations	II		3	P: 10.203	Departmental Staff
Chemical and Nuclear Engineering							
Cinema and Culture	52.374-021	Classics of Italian Cinema	II		3		Mario Aste
Civil Engineering	14.204-021	Strength of Materials	I		3	P: 14.203	Departmental Staff
	14.203-021	Statics	II		3	P: 92.132, 95.141, 96.141	Kenneth Liu
Civil Engineering Technology	15.420-021	Solid Waste Management	VI	T/Th	3		Departmental Staff
Civil Engineering Technology: Water/Wastewater Option:	CERTIFICATE IN ENVIRONMENTAL TECHNOLOGY (See page 13 for required courses.)						
	15.152-021	Water Biology	VI	M/W	3		Therese Champigny
	15.363-021	Wastewater Treatment Lab II (Lab Fee)	VI	T/Th	1 (3)	P: 15.263	Charles Panagiotakos
	15.388-021	Pumps and Compressors	VI	M/W	3		Donald Burford
	86.132-021	Environmental Chemistry II	VI	M/W	3	P: 86.131	Charles Panagiotakos
Computer Mathematics Option	CERTIFICATE IN WATER TREATMENT (See page 15 for required courses.)						
	CERTIFICATE IN WASTEWATER TREATMENT (See page 15 for required courses.)						
	90.457-021	Computer Ethics and Security	VI	T/Th	3	P: junior status	Antonio Gellineau
	92.202-021	Microcomputers and Applications Software (Lab Fee)	VI	M/W	3		Michael Beaulieu
	92.202-022	Microcomputers and Applications Software (Lab Fee)	V	T/Th	3		Dennis Roffman
	92.211-021*	Introduction to Programming /C (Lab Fee)	II		3	P: 92.121 or equivalent	Ann Marie Hurley
	92.211-022*	Introduction to Programming/C (Lab Fee)	V	T/TH	3	P: 92.121 or equivalent	Richard Desroches
	92.219-021	BASIC Programming (Lab Fee)	VI	M/W	3	P: 90.111 or working knowledge of another programming language or E.E.T. major	Ralph D'Amelio
	92.263-021	FORTRAN Programming (Lab Fee)	VI	T/Th	3	P: 90.112 or 92.121 or equivalent	James Brzowski
	92.265-021	Pascal Programming (Lab Fee)	II		3	P: 90.112 or 92.121 or equivalent, Area III	Ann Marie Hurley
	92.265-022	Pascal Programming (Lab Fee)	VI	M/W	3	P: 90.112 or 92.121 or equivalent, Area III	James Brzowski
	92.267-021	C Programming (Lab Fee)	III		3	P: 92.265	Ann Marie Hurley
	92.267-022	C Programming (Lab Fee)	VI	T/Th	3	P: 92.265	Herbert DaSilva
	92.267-023	C Programming (Lab Fee)	V	T/Th	3	P: 92.265	Timothy Niesen
	92.268-021	C++ Programming (Lab Fee)	VI	M/W	3	P: 92.267	Brian Hodges
	92.311-021	Introduction to UNIX Operating System (Lab Fee)	VI	T/Th	3	P: 92.267 or 92.211 and 92.364	Thomas Burns
	92.312-021	Unix Shell Programming (Lab Fee)	VI	T/Th	3	P: 92.311	Michael Richards
	92.360-021	Introduction to Data Structures/C (Lab Fee)	VI	T/Th	3	P: 92.267 or 92.211 and 92.364	Departmental Staff
	92.472-021	Local Area Networks	VI	M/W	3	P: 92.470	Raymond Vigeant
	92.478-021	Information Systems II	VI	T/Th	3	P: 92.477	R.L. Pitcher
	*Students may not receive credit for both 92.211 and 92.267.						
Criminal Justice (also see Paralegal Studies)	44.312-021	Security Management	VI	M/W	3		John Pignato
	44.321-021	Criminology II	III		3	P: 44.221	James Byrne
	44.351-021	Community Based Corrections	VI	M/W	3		Stephen Sacco
	44.380-021	Selected Issues: Police-Community Rel.	VI	T/Th		P: 44.141 or instructor permission	Stephen O'Donnell
	44.390-021	Introduction to Criminal Justice Research	II		3	P: junior and senior C.J. Majors only	James Byrne
Economics	CERTIFICATE IN SECURITY MANAGEMENT (See page 14 for required courses.)						
	49.201-021	Economics I (Microeconomics)	II		3	Area I	Departmental Staff
	49.201-022	Economics I (Microeconomics)	VI	M/W	3	P: Area I	Departmental Staff
	49.202-021	Economics II (Macroeconomics)	II		3	Area I	Michael Carter
	49.202-022	Economics II (Macroeconomics)	VI	T/Th	3	Area I	Michael Carter
	49.211-021	Statistics I	II		3	P: 92.122 or equivalent	Departmental Staff
	49.212-021	Statistics II	VI	T/Th	3	P: 49.211	Departmental Staff
Electrical Engineering	16.211-021	Fundamentals of Electricity	VI	T/Th	3	P: Instructor permission	Alan Rux
Electronic Engineering Technology	16.315-021	Complex Variables for Engineers	II		3	P: 92.234, 16.201	Stephen Spurk
	17.431-021	Electromagnetic Compatibility	VI	M/W	3	P: 17.376	Albert Paradis
English	42.101-021	College Writing I	I		3		Departmental Staff
	42.101-022	College Writing I	VI	M/W	3		Departmental Staff
	42.102-021	College Writing II	II		3	P: 42.101	Departmental Staff
	42.102-022	College Writing II	VI	T/Th	3	P: 42.101	Departmental Staff
	42.104-021	College Writing II for International Students	II		3	P: 42.103	June Tumblin
	42.104-022	College Writing II for International Students	VI	M/W	3	P: 42.103	June Tumblin
	42.212-021	The Short Story	I		3	P: 42.102, Area II	Departmental Staff
	42.217-021	The Horror Story	VI	T/Th	3	P: 42.102, Area II	Gerard O'Connor

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	42.224-021	Business Writing	VI	M/W	3	P: 42.102	Departmental Staff
	42.226-021	Technical and Scientific Communication	VI	T/Th	3	P: 42.102	Departmental Staff
	42.295-021	History of American Literature II	VI	T/Th	3	P: 42.102, Area II	Departmental Staff
	42.302-021	Creative Writing: Fiction	VI	M/W	3		Jay Atkinson
Environmental Technology	15.420-021	Solid Waste Management	VI	T/Th	3		Departmental Staff
	CERTIFICATE IN ENVIRONMENTAL TECHNOLOGY (See page 13 for required courses.) (See offerings under Civil Engineering Technology, Chemistry, Environmental Sciences, Political Science, and Water/Wastewater Option)						
Health Professions	35.102-021	Human Anatomy and Physiology II (M-Th: 10:30 a.m.-12:30 pm)			3	P: 35.101; C: 35.104	John Prescott
	35.104-021	Human Anatomy and Physiology II Lab (Lab Fee) (M, T, Th: 1:00-4:00 pm)			1 (3)	P: 35.103; C: 35.102	Bernard Queenan
History	43.111-021	U.S. History to 1877	VI	T/Th	3	Area II	Patricia Hill Zeigler
	43.379-021	World War II	VI	M/W	3	Area II	Donald Mattheisen
	43.384-021	Radicalism in American History	VI	T/Th	3		William Jordan
Industrial Technology	(See separate listings under Manufacturing, Plastics, and Water/Wastewater Options)						
Intercollegiate Liberal Arts Languages	59.209-021	Western Cultural Heritage II	I		3	Area II	Mario Aste
	50.212-021	Intermediate Conversational French II	VI	T/Th	3	P: 50.211 or equivalent, Area II	Departmental Staff
	51.212-021	Intermediate German II	VI	T/Th	3	P: 51.211	Robert Whelan
	51.352-021	Twentieth Century: German Short Prose	VI	M/W	3	P: 51.102 or instructor permission	Robert Whelan
	52.374-021	Classics of Italian Cinema	II		3		Mario Aste
	53.102-021	Beginning Japanese II	VI	T/Th	3		Departmental Staff
	53.104-021	Beginning Russian II	VI	M/W	3	P: 53.103	Rachel Rubin
	54.102-021	Beginning Spanish II	I		3	P: 54.101 or equivalent	Heli Hernandez
	54.102-022	Beginning Spanish II	VI	M/W	3	P: 54.101 or equivalent	Maria Castro
	54.212-021	Intermediate Conversational Spanish II	II		3	P: 54.211 or equivalent, Area II	Heli Hernandez
	54.212-022	Intermediate Conversational Spanish II	VI	T/Th	3	P: 54.211 or equivalent, Area II	Maria Castro
	59.209-021	Western Cultural Heritage II	I		3	Area II	Mario Aste
Legal Studies (See also Paralegal Studies.)	41.262-021	Introduction to Business Law	II		3		Departmental Staff
	41.262-022	Introduction Business Law	VI	T/Th	3		Departmental Staff
	41.363-021	Corp. and Property Law	VI	M/W	3		Russell Karl
	41.365-021	Law and Society	VI	T/Th	3	Human Values	Departmental Staff
	41.370-021	Real Estate Law	VI	M/W	3		Departmental Staff
	41.381-021	Women and the Law	VI	T/Th	3		Jane McElligott
	41.383-021	Alternative Dispute Resolution	VI	M/W		(Course does not qualify as an elective for Paralegal Certificate students.)	Daniel Wojick
	41.387-021	Legal Research Methods (Lab Fee)	VI	M/W			Jane McElligott
	41.391-021	Federal Taxation Law	VI	M/W	3		Anne Koen
Management	69.276-021	Entrepreneurial Mgmt. of New and Small Enterprises	V	M/W	3		Mel Epstein
	69.251-021	Personnel Management	VI	T/Th	3		P.G. Zicari
	CERTIFICATE IN PURCHASING MANAGEMENT (See page 15 for required courses.)						
Manufacturing Option	CERTIFICATE IN MANUFACTURING TECHNOLOGY (See page 14 for required courses.) (See also Mechanical Engineering Technology)						
Marketing	(For restrictions on courses marked +, refer to page 8 under College of Management AACSB Accredited Courses.)						
	62.201-021	Marketing Principles	V	T/Th	3		Mel Epstein
Mathematics	90.111-021*	Fundamentals of Algebra	VI	M/W	3		Eugene Welch, Jr.
	92.111-021	Mathematical Perspectives	II		3	Liberal Arts majors only, Area III	Departmental Staff
	92.115-021	College Trigonometry	I		3	P: 92.121	Departmental Staff
	92.115-022	College Trigonometry	VI	M/W	3	P: 92.121	John Savinelli
	92.121-021**	Pre-Calculus Mathematics	I		3	Area III	Departmental Staff
	92.121-022**	Pre-Calculus Mathematics	VI	M/W	3	P: 90.111 or placement exam**, Area III	Richard Hickey
	92.122-021	Differential Calculus	II		3	P: 92.121, Area III	Alan Kaplan
	92.125-021	Calculus A	VI	M/W	3	P: 92.115	Allan Gibbs
	92.126-021	Calculus B	VI	M/W	3	P: 92.125	Robert Fradette
	92.128-021	Calculus IB	II		4	P: 92.127	Departmental Staff
	92.131-021	Calculus I	II		4		Marvin Stick
	92.132-021	Calculus II	I		4	P: 92.131	Alan Kaplan
	92.132-022	Calculus II	II		4	P: 92.131	James Graham-Eagle
	92.183-021	Introduction to Statistics	I		3	P: 90.111 or equivalent, Area III	Alexander Olsen
	92.183-022	Introduction to Statistics	VI	M/W	3	P: 90.111 or equivalent, Area III	Departmental Staff
	92.201-021	Integral Calculus	II		3	P: 92.122, Area III	Alexander Olsen
	92.201-022	Integral Calculus	I		3	P: 92.122, Area III	Marvin Stick
	92.202-021	Microcomputers and Applications Software (Lab Fee)	VI	M/W	3		Departmental Staff
	92.202-022	Microcomputers and Applications Software (Lab Fee)	V	T/Th	3		Dennis Roffman
	92.225-021	Calculus C	VI	M/W	3	P: 92.126	Philip Breen
	92.226-021	Calculus D	VI	M/W	3	P: 92.225	Dorothy Greenler
	92.231-021	Calculus III	I		4	P: 92.132	Y. Q. Yin
	92.234-021	Differential Equations	II		3	P: 92.132 or 92.225	Rida Mirie
	92.234-022	Differential Equations	VI	M/W	3	P: 92.225	Rida Mirie
	92.263-021	FORTRAN Programming (Lab Fee)	VI	T/Th	3	P: 90.112 or 92.121 or equivalent	James Brzowski
	92.265-021	Pascal Programming (Lab Fee)	II		3	P: 90.112 or 92.121 or equivalent, Area III	Ann Marie Hurley
	92.265-022	Pascal Programming (Lab Fee)	VI	M/W	3	P: 90.112 or 92.121 or equivalent, Area III	James Brzowski
	92.267-021	C Programming (Lab Fee)	III		3	P: 92.265	Ann Marie Hurley
	92.267-022	C Programming (Lab Fee)	VI	T/Th	3	P: 92.265	Herbert DaSilva
	92.267-023	C Programming (Lab Fee)	V	T/Th	3	P: 92.265	Timothy Niesen
	92.268-021	C++ Programming (Lab Fee)	VI	M/W	3	P: 92.267	Brian Hodges
	92.306-021	Introduction to Real Analysis II	I		3	P: 92.305	James Graham-Eagle
	92.311-021	Intro. to the UNIX Operating System (Lab Fee)	VI	T/Th	3	P: 92.267 or 92.211 and 92.364	Thomas Burns
	92.321-021	Discrete Structures I	VI	M/W	3	P: 90.112 or 92.121	Anthony Penta
	92.386-021	Statistics for Science and Engineering	VI	M/W	3	P: 92.226 or 92.132	Y. Q. Yin
	92.410-021	Computers in the Classroom			3	P: A Programming Language, Calculus III or Calculus D	Kenneth Levasseur
August 1-5: classes and labs 9:00 am-2:00 pm August 8-12: lab sessions to be arranged August 15-19: classes and labs 9:00 am-12:00 noon *Fundamentals of Algebra (90.111) is a preparatory course and cannot be credited toward a degree program at the University of Massachusetts Lowell. **Placement exam is given the first evening of class. ***Students may not receive credit for both 90.112 and 92.121. Students may not receive credit for both 92.211 and 92.267. Many 500-level courses are well within the grasp of upper level undergraduates and may be used as electives. Refer to the Graduate School listing and contact the Graduate School for admissions procedures. University of Massachusetts Lowell Day students must have approval from the mathematics coordinator before taking courses with a 90 prefix.							
Mechanical Engineering	22.212-021	Mechanics of Materials	TBA		3	P: 22.211, 92.225 or 92.231	Departmental Staff
	22.213-021	Dynamics	TBA		3	P: 22.211, 92.225 or 92.231	Departmental Staff
	22.242-021	Thermodynamics	TBA		3	P: 25.101, 25.102, 92.231, 95.144	Departmental Staff
	22.302-021	Mechanical Engineering Lab I: Instrumentation (Lab Fee) (Tues. and Thurs.: 4:00-7:00 pm)			2 (3)	P: junior status	Departmental Staff
	22.344-021	Heat Transfer	TBA		3	P: 22.381, 92.301	Departmental Staff
	22.354-021	Dynamic Systems	TBA		3	P: 22.213, 92.234	Departmental Staff
	22.424-021	Capstone Design II	TBA		2 (3)	P: Senior status	Departmental Staff
All classes for Mechanical Engineering begin the week of July 11 and end August 26.							

SUMMER SESSION II 1994 (Continued)

Mechanical Engineering Technology	23.102-021	Engineering Graphics II	VI	T/Th	2 (3)	P: 23.101	Mitchell Keamy, Sr.
	23.222-021	Dynamics	VI	M/W	3	P: 92.126, 23.221	Marilynn Keppler
	23.243-021	Elements of Thermodynamics II	VI	T/Th	3	P: 23.241	Vernon Oliver
	23.414-021	Engineering Economics	VI	M/W	3	P: 49.201	Bruce Lutz
	23.426-021	Quality Systems Certification/ISO 9000	VI	T/Th	3	P: 23.314	Charles Priest
	23.419-021	CAM (Lab Fee)	VI	T/Th	3	P: 23.305 or 23.306	David Ierardi
Music	23.481-021	Applied CADes (Lab Fee)	VI	M/W	3	P: 23.480	Prasanna Godbole
	71.100-021	Fundamentals of Music	I		3	Music Majors only	Antone Holevas
	71.100-022	Fundamentals of Music	VI	M/W	3	Music Majors only	Departmental Staff
	71.110-021	Basic Music Theory	VI	M/W	3	Non-Music majors, Area II	Juanita Tsu
	71.102-021	Music Theory II	I		3	P: 71.101	Mark Peterson
	71.104-021	Solfege II	II		3	P: 71.103	Lisa Cleveland
Paralegal	71.202-021	Music Theory IV	II		3	P: 71.201, Music majors only	Antone Holevas
	71.204-021	Solfege IV	I		3	P: 71.103	Departmental Staff
	For a listing of undergraduate Music Education courses offered this summer, please see the house ad on page 12.						
	41.363-021	Corporate and Property Law	VI	M/W	3		Russell Karl
	41.370-021	Real Estate Law	VI	M/W	3		Departmental Staff
	41.387-021	Legal Research Methods	VI	M/W	3		Jane McElligott
Philosophy	41.391-021	Federal Tax Law	VI	M/W	3		Anne Koen
	44.497-021	Paralegal Practicum	TBA		3	P: minimum of three paralegal courses	Patricia Hohl
	Please see admission requirements to the Paralegal Certificate on page 14. Courses are open only to students currently enrolled in the Paralegal Certificate. Courses are available to other students on a space available basis.						
	45.201-021	Introduction to Philosophy	II		3	Area II and Human Values	Jane Freimiller
	45.201-022	Introduction to Philosophy	VI	T/Th	3	Area II and Human Values	Michael Koran
	45.202-021	Introduction to Logic	III		3	Area II	Kevin Connolly
Physics	45.202-022	Introduction to Logic	VI	T/Th	3	Area II	Peter Skagestad
	45.203-021	Introduction to Ethics	VI	M/W	3	Area II and Human Values	Donald LeBlanc
	95.104-021	General Physics II	I		3	P: 95.103; C: 96.104	Departmental Staff
	95.121-021	Exploring the Universe	I		3	Area III	Paul Ring
	95.141-021	Physics I	II		3 (4)	P: 95.141; C: 92.131, 96.141	Roger McLeod
	95.144-021	Physics II	II		3 (4)	C: 92.132, C: 96.144	Paul Ring
Plastics Option	96.104-021	Experimental General Physics II (Lab Fee)	IV		1 (1.5)	C: 95.104	Departmental Staff
	96.141-021	Experimental Physics I (Lab Fee)	IV		1 (1.5)	C: 95.141	Departmental Staff
	96.144-021	Experimental Physics II (2 afternoons per week) (Lab Fee)	IV		1 (1.5)	P: 96.141; C: 95.144	Paul Ring
	27.453-021	Selected Topics III	VI	M/W	3	P: Instructor permission	Stephen Driscoll
	27.454-021	Selected Topics IV	VI	T/Th	3	P: Instructor permission	Stephen Driscoll
	46.101-021	Introduction to American Politics	VI	M/W	3	Area I	Departmental Staff
Political Science	47.101-021	General Psychology	I		3	Area I	Kevin Callahan
	47.101-022	General Psychology	VI	T/Th	3	Area I	Departmental Staff
	47.209-021	Social Psychology	VI	M/W	3	Area I, Human Values	William Berkowitz
	47.232-021	Psychology of Personality	II		3	P: 47.101, Area I	Joseph Waterman
	47.255-021	Community Psychology	I		3	Area I	Victoria Bacon
	47.260-021	Human Development I	III		3	Area I	Victoria Bacon
Psychology	47.272-021	Abnormal Psychology	VI	M/W	3	P: 47.101, Area I	Susan McLaughlin
	47.328-021	Dynamics of Interpersonal Relations	VI	T/Th	3	P: Area I	Beltz
	47.335-021	Psychology of Women	II		3	Area I, Human Values	Departmental Staff
	47.360-021	Human Development II	VI	T/Th	3	P: 47.260	Berna Haberman
	47.475-021	Seminar in Clinical Psychology	VI	M/W	3	P: 47.272 or 47.232 or instructor permission	Kevin Callahan
							Wayne Klug
Radiological Sciences	99.101-021	Radiation and Life	II		3	C: 99.102, Area III	Jesse Harris
	99.102-021	Radiation and Life Lab (Lab Fee)	IV		1 (2)	C: 99.101, Area III	Jesse Harris
Sociology	48.101-021	Introduction to Sociology	I		3	Area I	Levon Chorbajian
	48.101-022	Introduction to Sociology	VI	M/W	3	Area I	Levon Chorbajian
	48.231-021	Sociology of the Family	VI	M/W	3	Area I	Mitra Das
	48.382-021	Social Movements	VI	T/Th	3	P: 48.101, Area I, Human Values	Mitra Das
Water/Wastewater Technology Option	(See Civil Engineering Technology: Water/Wastewater Option)						

SUMMER SESSION I 1994 Graduate

Except as noted: classes scheduled for periods I-IV (day) begin on May 23 M/W classes scheduled for periods V and VI (evening) begin on May 23. T/Th classes scheduled for periods V and VI (evening) begin on May 24.

Reminder: It is important to check course numbers and prerequisites to ensure enrollment in the correct class.

College of Management AACSB Accredited Courses

The College of Management at the University of Massachusetts Lowell is accredited by the American Assembly of Collegiate Schools of Business (AACSB) at the graduate and undergraduate level. All courses preceded with + should be acceptable towards any AACSB accredited program and transfer to the College of Management's M.B.A. and undergraduate programs without any restrictions, provided the student has fulfilled all prerequisites prior to taking the course. These courses marked with + are limited to students enrolled in AACSB accredited programs.

	No.	Title	Period	Eve.	Credit (Contact Hours)	P: Prerequisite C: Corequisite/Comments	Instructor
Business Administration	(For restrictions on courses marked +, refer to page 10 under College of Management AACSB Accredited Courses.)						
	+61.760-011	International Financial Management	V	M/W	3	P: completion of Foundations core	Yash Puri
	+62.710-011	Marketing Research	V	M/W	3	P: completion of Foundations core	Eunsang Yoon
Computer Science	91.500-021	Fundamental Models (13 weeks)	VI	T	3		Charles Steele
	91.585-021	Computer Architecture (10 weeks) (Wed. 6:00-8:00 pm; Sat. 9:00 am-11:00 am)			3		J. Canning/ W. Moloney
Criminal Justice	44.523-011	Elite Deviance	VI	T/Th	3		Stephen Sacco
	44.593-011	Computer Crime and Security	I		3		Joseph Lipchitz
Electrical Engineering	(All Electrical Engineering courses begin the week of May 23 and end the week of July 25, 1994 and are held from 6-8 pm unless otherwise noted)						
	16.528-011	Alternate Energy Sources (May - 6 weeks)	V	M/W	3	P: Instructor permission	Ziyad Salameh
	16.574-021	Advanced Logic Design		M/W	3	P: 16.217, 16.265	Anh Tran
	16.700-021	Seminar		M/W	3	P: ≥ 15 graduate credits	Edwin Kowaleski
	16.700-022	Seminar		T/Th	3	P: ≥ 15 graduate credits	David Wade
	16.721-021	Special Topics: Fuzzy Systems Theory and Applications		M/W	3		Syama Chaudhuri
	16.722-021	Special Topics: Air Traffic Surveillance Systems		T/Th	3		Aditya Kamal
	16.723-021	Special Topics: Electromagnetics of Complex Media		M/W	3		Dikshitulu Kalluri
Environmental Studies	16.724-021	Special Topics: Neural Networks		T/Th	3		Liang
	89.526-011	Hydrogeology and Mass Transport	VI	T/Th	3	P: instructor permission	Arnold O'Brien
Health Professions	32.616-011	Legal Issues in Health Services Administration		V	M/W		Robert Ford
	32.620-011	Human Resource Management		T/Th			Brendan Egan
	34.615-011	Clinical Education Experience I (8:00 am-5:00 pm)		TBA	2 (4)	P: only Physical Therapy graduate students	Departmental Staff

SUMMER SESSION 1994 Graduate

Mathematics	92.500-011	Discrete Structures	II		3		Alan Doerr
	92.501-011	Real Analysis (5:30-8:30 pm)		T/Th	3	P: 92.221/92.306 or equivalent	Lee Jones
	92.516-011	Pattern Recognition and Neural Networks (5:30-8:30 pm)		M/W	3	92.386/Linear Algebra or equivalent	Lee Jones
	92.520-011	Mathematical Problem Solving	V	T/Th	3	P: 92.226 or 92.231	Kenneth Levasseur
	92.521-011	Algebraic Structures I	III		3	P: 92.221 or 92.321	Alan Doerr
	92.550-011	Mathematical Modeling (5:30-8:30 pm)		M/W	3	P: 92.231 or equivalent; combined with 92.450	James Graham-Eagle
	92.580-011	Combinatorics (5:30-8:30 pm)		M/W	3	P: Calculus and 92.386 or equivalent	Y. O. Yin
Plastics	26.711-011	Independent Study in Plastics	TBA			P: instructor permission	Rudolph Deanin
	26.721-011	Advanced Project (non-lab section)	TBA	TBA	3	P: instructor permission	Rudolph Deanin
	26.721-012	Advanced Project (lab section)	TBA	TBA	3	P: instructor permission	Rudolph Deanin
Psychology	47.531-011	Substance Abuse	V	T/Th	3		Richard Siegel
	47.534-011	Diversity in the Family	VI	M/W	3		Jon Hellstedt
	47.541-011	Ethical Issues in Psychology	V	T/Th	3		William Berkowitz
Radiological Science	98.681-011	Medical Physics	TBA		3		Departmental Staff
	98.687-011	Medical Physics Internship	TBA		3		Jesse Harris
	98.697-011	Advanced Graduate Medical Physics Internship	TBA		3		Jesse Harris

SUMMER SESSION II 1994 Graduate

Except as noted: classes scheduled for periods I-IV (day) begin on July 11. M/W classes scheduled for periods V and VI (evening) July and 11. T/Th classes scheduled for periods V and VI (evening) begin on July 12.

Criminal Justice	44.520-021	Crime and Community	VI	T/Th	3		Elizabeth Curtain
	44.622-021	Violence in the Family	VI	M/W	3		Eve Buzawa
Health Professions	34.634-021	Clinical Education Experience II (8:00 am-5:00 pm)			2 (4)	P: all first and second year graduate Physical Therapy courses	Departmental Staff
Mathematics	92.510-021	Computers in the Classroom Aug. 1-5: classes and labs 9:00 am-2:00 pm Aug. 8-12: lab sessions: times to be arranged Aug. 15-19: classes and labs 9:00 am-12:00 noon			3	P: instructor permission, a programming language, Calculus III	Kenneth Levasseur
	26.712-011	Independent Study in Plastics	TBA				Rudolph Deanin
	26.722-021	Advanced Project (non-lab section)	TBA	TBA	3	P: instructor permission	Rudolph Deanin
	26.722-022	Advanced Project (lab section)	TBA	TBA	3	P: instructor permission	Rudolph Deanin
Psychology	47.532-021	Violence in Family	VI	M/W	3		Eve Buzawa
	47.623-021	Interventions with Children and Adolescents	V	T/Th	3		Deb Abner
Radiological Sciences	98.687-021	Graduate Medical Physics Internship	TBA		3		Jesse Harris
	98.697-021	Advanced Graduate Medical Physics Internship	TBA		3		Jesse Harris

SUMMER GRADUATE EDUCATION 1994

No.	Course Title	Dates	Days	Times	Credots	Instructor
Summer I						
01.502-011	Development and Assessment of Learning	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Departmental Staff
01.530-011	Child Health in the Community	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Robert Neal
01.648-011	International Education	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Carole Ruth Harris
01.639-011	School and Community	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Donald Kennedy
02.514-011	Cultural Issues, Language Diversity	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Juan Rodriguez
02.518-011	Resources for Bilingual Education	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Eduardo Carballo
02.521-011	Design Bilingual Curriculum	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Eduardo Carballo
02.553-021	Language Arts and Literature: Elementary	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Vera Ossen
03.511-011	Macintosh for Bilingual/ESL Teachers	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Juan Rodriguez et al
03.654-011	Exploring the Internet	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	John LeBaron et al
04.511-011	Music in the Elementary Schools	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Rosita Sands
04.535-011	Math for Secondary Teachers	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Regina Panassiouk
04.643-011	The Skillful Teacher	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Robert Gower
05.618-011	TQM in the Public Schools	5/23 - 6/30	F	4:00 pm - 7:15 pm	3	Joanne Newcomb
			Sat.	9:00 am - 12:15 pm	3	
05.622-011	Financial Aspects of Educational & Human Serv. Admin.	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Joanne Newcomb
05.623-011	Legal Policy in Educational Administration	5/23 - 6/30	M/W	6:00 pm - 9:15 pm	3	Jeffrey Murray
05.624-011	Human Services and the Law	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Martha Dunn-Strohecker
05.626-011	Educational Response to Cultural Diversity	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Dorothy Meyer
05.632-011	Meeting Needs of People in Crisis	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Dorothy Meyer/Jean Sproat
05.639-011	The Planning Process: Administration	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Dorothy Meyer et al
05.641-011	Issues in Staff Development	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Charles Christensen
06.527-011	Language Acquisition	5/23 - 6/30	M/W	4:00 pm - 7:15 pm	3	Denise Marchionda
06.622-011	Literature for Young Adults	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Linda Flynn
07.640-011	Research Methods	5/23 - 6/30	T/Th	4:00 pm - 7:15 pm	3	Dana Zeidler
92.500-011	Discrete Structures	5/23 - 6/30	M-Th	9:45 am - 11:45 am	3	Alan Doerr
92.520-011	Mathematical Problem Solving (P: 92.126 or equivalent)	5/23 - 6/30	T-Th	6:00 pm - 9:00 pm	3	Kenneth Levasseur
92.521-011	Algebraic Structures I (P: 92.231)	5/23 - 6/30	M-Th	12:00 pm - 2:00 pm	3	Alan Doerr
Summer Intersession						
GE-01-021	Up in Smoke Tsongas Center Institute	7/5 - 7/8	T-F	9:00 am - 3:00 pm	NC*	Edward Pershey
GE-02-021	Computer Literacy Workshops	7/5 - 7/8	T-F	9:00 am - 2:00 pm	NC	Denise Marchionda
	*credit option available					
Summer II						
•01.501-021	Diversity in the Classroom	7/11 - 8/20	T/Th	9:00 am - 12:15 pm	3	Departmental Staff
•02.556-021	Reading/Reading Disabilities	7/11 - 8/20	M/W	1:00 pm - 4:15 pm	3	Vera Ossen
•03.510-021	Computers and Multi-Media in the Classroom	7/11 - 8/20	T/Th	6:00 pm - 9:15 pm	3	John LeBaron et al
•04.566-021	The Middle School Child: Turning Points in Development	7/11 - 8/20	T/Th	6:00 pm - 9:15 pm	3	Charles Christensen
•04.641-021	History of American Curriculum	7/7		1:00 pm - 5:00 pm	3	Norman Benson
		8/22, 24, 26		8:00 am - 1:30 pm		
		28, 30; 9/2				
•04.658-021	The Gifted Child	7/11 - 8/20	M/W	6:00 pm - 9:15 pm	3	Carole Ruth Harrus
•06.602-021	Developmental Reading/Secondary	7/11 - 8/20	M/W	9:00 am - 12:15 pm	3	Glenda Ouellette
•06.621-021	Literature for Children	7/11 - 8/20	M/W	9:00 am - 12:15 pm	3	Debbra Uttero
•06.624-021	Teaching Reading Comprehension	7/11 - 8/20	T/Th	1:00 pm - 4:15 pm	3	Linda Flynn
•06.648-021	Practicum in Reading and Language Disabilities	7/11 - 8/20	M-F	8:30 am - 12:15 pm	6	Vera Ossen
•06.656-021	Creativity and Language Arts	7/11 - 8/20	T/Th	6:00pm - 9:15 pm	3	Carole Ruth Harris

6-credit Reading Clinic; matriculated students only P: 06.628, 06.629
*Institutes: Additional meetings will be required for credit. Non-credit option available.
For a listing of Graduate Music Education Courses offered this summer, please see the house ad on page 12.

Summer Music Education Programs

June 27th - August 23

The following courses will be offered for both graduate and undergraduate credit during the Summer:

- | | |
|---|---|
| 73.591 Multicultural Music Education
(6/27-7/7; 3 graduate credits) \$450.00 | 73.565 Marching Band Techniques
(8/1-9; 3 graduate credits) \$450.00 |
| 73.490 Multicultural Music Education
(6/27-7/7; 3 undergraduate credits) \$315.00 | 73.465 Marching Band Techniques
(8/1-9; 3 undergraduate credits) \$315.00 |
| 73.573 Orff Schulwerk Level I
(7/11-22; 3 graduate credits) \$450.00 | 73.579 Show Choir/Musical Theater Tech
(8/10-19; 3 graduate credits) \$450.00 |
| 73.473 Orff Schulwerk Level I
(7/11-22; 3 undergraduate credits) \$315.00 | 73.479 Show Choir/Musical Theater Tech
(8/10-19; 3 undergraduate cr.) \$315.00 |
| 73.574 Orff Schulwerk Level II
(7/11-22; 3 graduate credits) \$450.00 | Special Non Credit Workshop:
Silver Burdett & Ginn Workshop
(8/23; non-credit) \$50.00 |
| 73.576 Introduction to Dalcroze
(7/25-29; 1 graduate credit) \$150.00 | |
| 73.476 Introduction to Dalcroze
(7/25-29; 1 undergraduate credit) \$105.00 | |

For further information about the Summer Music Education programs, or a brochure please call the Office of Special Programs at (508) 934-2405.

NEW! COMPUTER SCIENCE PREP: A TRANSITIONAL PROGRAM FOR POTENTIAL GRADUATE STUDENTS

Are you:

- ☒ SEEKING ADVANCEMENT IN THE COMPUTER PROFESSION?
- ☒ CONSIDERING A MASTER'S DEGREE IN COMPUTER SCIENCE?
- ☒ WONDERING WHETHER YOU CAN MAKE THE TRANSITION TO GRADUATE SCHOOL?
- ☒ LOOKING FOR AN OPPORTUNITY TO UPGRADE YOUR COMPUTER KNOWLEDGE?

If you currently have a Bachelor's degree in Business, Management Information Systems, Engineering, or you have been working in the computer field, you may want to consider a master's degree in Computer Science as one route to career advancement.

The Computer Science Department and the Division of Continuing Education will offer three summer courses to help prepare students for entry into the Computer Science Graduate Program.

The following three courses offered this summer are designed to help the potential graduate student to make up for one or more deficiencies. (See Course listings for specific times and dates.)

(91.585) Computer Architecture

This accelerated undergraduate level computer architecture course includes: historical perspectives, number representation, digital logic, cpu, memory, bus organization, microprogramming, assembly language level, and an introduction to risc and parallel computers. Course material will be reinforced with two laboratory experiences.

Lab experience 1: Students will learn the internals of a 68000 based computer (Amiga) and control it directly via assembly language without the assistance of the operating system. Students will manage the graphics, display, and audio hardware of the machine while writing a simple video game to reinforce such concepts as: coprocessor technology, DMA, computer organization, and memory mapped i/o.

Lab experience 2: Students will learn, maintain, and extend a simulator of a microprogrammed toy computer. This simulator, written in C, allows students to obtain a much finer appreciation of how microprogramming and a traditional von Nuemann CPU work.

This course is a precursor to the graduate level Computer Architecture course. (91.551).

(91.350) Data Structures, Algorithms and C

This is an accelerated C programming experience with an emphasis on data structures and a descriptive treatment of algorithms. This course will assist those students who may have had some exposure to programming in another language or who perhaps need a more formal explanation of the C programming language. A descriptive treatment will be given of algorithms which manipulate data structures such as trees, graphs, stacks, and queues.

(91.500) Fundamental Models

This 3 credit remedial course is designed to strengthen the mathematical abilities of a transitional student as they pertain to computer science. Topics include: combinatorics, deductive and inductive proofs, and probabilistic modeling. This course is a precursor to the topics covered in two core graduate computer science courses. (91.502, 91.503).

NOTE: For the non-traditional student, unconditional acceptance into the M.Sc. in Computer Science program at UMass Lowell requires that students: honor all graduate school criteria, demonstrate mathematical maturity, demonstrate programming proficiency, preferably in C or C++, and demonstrate a working knowledge of the four content areas: architecture, operating system, data structures/algorithms, and languages.

1994 Summer

WRITER'S Conference



June 16-19

For 1994, the UMass Lowell Summer Writing Program and Writers Conference have been combined and are now offered during the first Summer Session 5/23-6/30. The popular Summer Reading Series will feature locally-based, award-winning writers whose presentations will be complemented by several non-credit workshops. For a brochure on the Summer Writing Program and the Summer Writer's Conference, please call the Office of Special Programs at (508) 934-2405.

UMass Lowell Center for Recording Arts, Technology and Industry

presents

SUMMER WORKSHOPS FOR AUDIO PROFESSIONALS

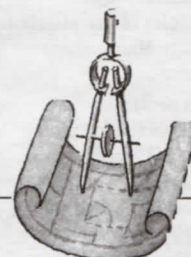
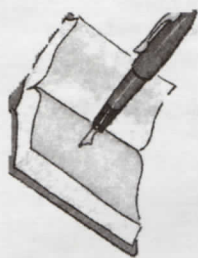
June 2 & 3, 1994

Current Topics and Advanced Production Techniques in Audio Recording

Workshops will be taught by respected professionals in the recording industry and faculty of the UMass Lowell's Sound Recording Technology Program. For a brochure describing the workshop series, please call the Office of Special Programs at (508)-934-2405.

Also, ask about our Digidesign Proschool Training Course Programs!

UMass Lowell Certificate Programs



Training for high demand careers

Today, just finding a job can be hard. Tomorrow, keeping that same job may be even harder. The jobs of the future will require specific skills and knowledge, especially in the emerging industries of microelectronics, software, computers, biotechnology and telecommunications. As we enter the era of the global marketplace, continuing education and training will become a necessary part of our survival strategies for the year 2000.

Certificate programs provide opportunities for returning students to obtain marketable skills within a concentrated time frame. Designed for those who want specialized skill sets, but do not want to pursue a degree program at this time, the certificate programs consist of five, six or seven courses, which when taken together demonstrate expertise in a specific area. In most cases, certificate program courses may be applied to a related degree program.

If you want to acquire specialized technical skills, invest in your future by enrolling in one of our 17 affordable short-term certificate programs.

CERTIFICATES AT A GLANCE

Certificate in Accounting
Certificate in Banking
Certificate in Computer Proficiency
Certificate in Data Communications
Certificate in Electro-Optics
Certificate in Environmental Technology
Certificate in Manufacturing Technology
Certificate in Paralegal Studies
Certificate in Plastics Engineering Technology
Certificate in Purchasing
Certificate in Quality Assurance
Certificate in Security Management
Certificate in Spanish
Certificate in Technical Writing
Certificate in UNIX
Certificate in Water Treatment
Certificate in Wastewater Treatment



Certificate in Environmental Technology and B.S. in Civil Engineering Technology (Environmental Option)

This Certificate Program is designed for technicians and support personnel employed in safety, laboratory, physical plant, distribution, transportation, drafting, public works or health board functions, as well as consultants. In addition, the Program will update engineers in various disciplines who need to understand current environmental laws and compliance technologies. Program graduates might expect to assist in projects such as air pollution control, resource recovery, analytical services, hazardous waste management, waste management, water infrastructure, instrument manufacturing, solid waste management, energy sources, asbestos abatement, and water utilities development.

All Certificate courses apply to the B.S. in Civil Engineering Technology (Environmental Option) degree.

Required Courses

15.340	Hazardous Waste Management
15.378	Air Quality Management
15.420	Solid Waste Management
84.121	Chemistry I
84.122	Chemistry II

Electives (Choose 2)

15.356	Water Treatment
15.358	Wastewater Treatment
15.280	Industrial Waste Treatment
41.367	Environmental Law and Regulation
87.103	Earth and Its Environment

With a bachelor's degree in Civil Engineering Technology (Environmental Option), the working professional earns credentials as an engineering technologist. An engineering technologist will have the technical background needed to work in many environmentally related areas, including: solid waste, water treatment operation and design, wastewater treatment operation and design, groundwater remediation, solid waste management, hazardous waste management, and air quality monitoring.

Curriculum for B.S., CET, Environmental Option (134 credits)

The B.S. in Civil Engineering Technology, Environmental Option requires the same courses as the Structural Option, except for these eight courses:

15.356	Water Treatment
15.340	Hazardous Waste Management
15.358	Wastewater Treatment
15.360	Water and Wastewater Lab
15.378	Air Quality Management
15.396	Groundwater Resources
15.420	Solid Waste Management
41.367	Environmental Law



Certificate in Spanish

This certificate program offers proficiency in the Spanish language as well as exposure to the literature and culture of Latin America and Spain. It is valuable not only to teachers but to engineers, consultants, business people and others for whom language proficiency and cultural information are crucial for successful business operations in Spanish-speaking countries and for doing business with Spanish-speaking minorities in the United States. Fluency in Spanish is also an important asset for government workers, social workers, hospital personnel and others who work with the Hispanic community.

To enroll in the certificate program, a student must have completed either 2 years of high school Spanish or 1 year of college Spanish. For those without the prerequisite language background we offer beginning Spanish every semester. The certificate program is comprised of six required and four elective 3-credit courses. The University of Massachusetts Lowell will accept a maximum of 6 transfer credits applicable to the 30-credit certificate program, upon approval of the program coordinator.

Required Courses

54.234	Advanced Grammar and Syntax
54.315	Latin American Civilization and Culture
	Choose 1 of 2
54.245	Advanced Spanish Conversation
54.254	Topics in Conversational Spanish

(Choose 3 of 6)

54.302	Introduction to Latin American Literature
54.310	Spanish Civilization and Culture
54.320	Special topics in Spanish Studies
54.401	Selected Authors
54.409	Twentieth Century Spanish Literature
54.412	The Short Story in Latin America

Electives (choose 4)

54.211	Intermediate Conversational Spanish I
54.212	Intermediate Conversational Spanish II
54.221	Reading and Conversing in Spanish I
54.222	Reading and Conversing in Spanish II
54.301	Introduction to Spanish Literature
54.313	Fieldwork in the Spanish Community

UMass Lowell Certificate Programs



Certificate in Security Management

In recent years the need for industrial security professionals has grown dramatically. Career opportunities in this exciting field are available in all industries and a variety of corporate environments. Courses combine practical instruction by professionals who have extensive experience in the field, with hands-on training in the latest security applications.

This 21 semester hour undergraduate program has been designed for those interested in industrial security as a career. Managers concerned with the protection of corporate assets will also benefit from the program.

Students may take courses in order to obtain a certificate, or they may apply these credits as part of an associate or bachelor degree in Criminal Justice.

Students pursuing other fields of study may use these courses as electives toward an Associate or Bachelor degree. A maximum of three (3) semester hours can be transferred from other institutions.

Required Courses

44.111	Introduction to Industrial Security
44.201	Computer Applications in Criminal Justice
44.211	Physical Security
44.241	Principles of Investigation
44.312	Security Management

Electives (Choose 2)

19.401	Occupational Health
23.310	Industrial Safety
44.234	Criminal Law
44.385	Crime and Mental Illness
44.497S	Security Practicum
47.272	Abnormal Psychology
67.201	Accounting Principles I
67.202	Accounting Principles II
69.251	Personnel Management
84.111	General Chemistry
90.457	Computer Ethics and Security



Certificate in Manufacturing Technology

This program is designed for technical personnel, supervisors, and managers involved in the many manufacturing technology disciplines that require a broad understanding of manufacturing processes, automation methods, and environments.

Focusing on the technology of manufacturing processes, the program is designed to correlate theoretical knowledge and the real world environment of manufacturing technology.

This certificate program can serve as a first step towards obtaining an undergraduate degree in manufacturing technology.

Participation in the program will prepare students for career advancement opportunities, including positions such as: senior technician, line supervisor, group leader, foreman, junior engineer, and senior analyst. In addition, experienced engineers and managers who need to update their skills in applying current manufacturing technologies will benefit from this program.

Certificate of Manufacturing Technology (21 Credits)
4 Required Courses and 3 Electives

Required Courses

23.200	Computer Aided Drafting
23.305	Manufacturing Processes
or	
23.306	Manufacturing Processes for Electronic Products
23.416	Statistical Quality Control
23.419	CAM Systems

Electives (Choose 3)

23.301	Manufacturing Technology Lab
23.310	Industrial Safety
23.314	Manufacturing Productivity (Total Quality Manufacturing)
23.402	Engineering Measurement Lab
23.427	Plant Layout and Material Handling
23.474	Design for Manufacture
23.480	Computer Aided Design
93.386	Statistics for Science and Engineering



Certificate in UNIX®

The Certificate program in UNIX is designed to give professionals a working knowledge of UNIX principles. Being fluent in UNIX can make the difference in winning a job or promotion, as more personnel directors regard knowledge and fluency in UNIX principles as a key criteria for job recruitment and selection.

The program is also designed for those currently in the computer industry who want to upgrade their skills, or those with some basic computer literacy that want to enter this fast growing field.

Potential career paths for those who successfully complete the UNIX certificate program are: System Administrator, System Programmer, or Application Programmer. The Certificate program can help you move into an entry level job in these growth areas of the future.

Required Courses

92.267	C Programming
92.360	Introduction to Data Structures
92.311	Introduction to the UNIX Operating System
92.312	UNIX Shell Programming

Electives (Choose 1)

92.313	UNIX Internals Overview
92.314	UNIX System Interface Programming
92.315	Developing Portable Applications
92.268	C++ Programming
92.316	UNIX System Administration

UNIX is a registered trademark of UNIX System Laboratories, Inc.



Certificate in Banking Studies

This certificate program is designed primarily for entry level personnel such as tellers, customer service representatives, mid-management staff, and support staff in consumer lending and retail banking departments looking to move up the career ladder. Students interested in entering the field of banking will also benefit from the program.

Required Courses

42.224	Business Writing
67.101	Accounting Principles I
69.101	Principles of Banking
69.105	Consumer Lending
69.127	Financial Planning
67.117	Law and Banking: Principles

These courses can be applied towards the University's Associate degree in Banking. With the exception of the Business Writing course, all courses apply to the American Institute of Banking's General Banking Diploma (which requires six courses) and also to AIB's Consumer Credit Diploma (which requires nine courses).

The Associate of Science degree in Banking is offered in the Division of Continuing Education at the University of Massachusetts Lowell in cooperation with the Merrimack Valley Chapter of the American Institute of Banking (AIB).



Certificate in Technical Writing

This part-time, evening program allows you to become a technical writer in 10 months. Anyone with strong writing skills and an aptitude for computers is qualified to enter the Program. The Program will train participants to be proficient in desktop publishing, hypertext, software documentation, microcomputer and application software, and programming languages using UMass/Lowell's VAX system and PC computer labs. All instructors are practicing professionals from the high tech industry. Take advantage of special internship opportunities, apply for scholarships sponsored by the Society for Technical Communication, and qualify for our excellent placement program. Benefitting from our industry advisory board of representatives from Digital, Wang, Prime, Sun Microsystems, and Hewlett-Packard, the program teaches the use of most current technologies and processes.

Required Courses

42.401	Principles of Technical Writing
42.402	Software Writing
42.403	Advanced Software Writing
92.202	Microcomputer and Applications Software

Electives

42.301	Topics in Writing: Desktop Publishing and a Computer Elective or 2 Computer Electives
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Certificate in Paralegal Studies and B.S. in Criminal Justice, Paralegal Option

Paralegals are projected to be one of the fastest-growing occupations in Massachusetts, with over 3000 new jobs to be created by the year 2000.

UMass Lowell offers students interested in pursuing this challenging field two options:

- 1.) A Paralegal Option within the Criminal Justice program leading to a Baccalaureate Degree; and
- 2.) A Credit Certificate Program in Paralegal Studies.

General requirements for the Paralegal Certificate Program (7 courses):

Required Courses

41.103	Introduction to Paralegal Studies
41.390	Litigation
44.301	Computer Applications for the Legal Profession
41.387	Legal Research Methods

Specialty Requirements (Choose 3)

41.363	Corporate and Property Law
41.370	Real Estate Law
41.376	Family Law
41.391	Federal Taxation Law
44.287	Legal Writing for Paralegals
44.435	Alternative Dispute Resolution
44.497	Paralegal Practicum/ Internship

Please see page 19 for additional Paralegal seminars offered this summer.

Total requirements for the Paralegal Certificate Program: 21 credits.

Admission Requirements

Only applicants who have completed 45 hours of general college study or two years work experience in a legal field may be accepted as candidates for the Certificate of Paralegal Studies.

A Bachelor of Science Degree in Criminal Justice with a Paralegal Option is also offered by the Criminal Justice Department at the University of Massachusetts Lowell. For more information about the Paralegal programs, please call Cathy Kendrick at (508)-934-2495.



Certificate in Electro-Optics

Electro-optics is a fast-moving area of applied science and engineering generating an increasing number of applications in manufacturing, communications, medicine, and other industries. Electro-optics technology covers a broad range of topics, including optical materials, semiconductors used as optical sources and receivers, fabrication of passive and active optical devices, information modulation for high-speed transmission, and the processing of optical data.

Career opportunities are developing in the electro-optic industry not only in the manufacture of optical materials, components and systems; but also in instrument design, in factory automation and system installation of communications and computer networks.

This cutting-edge program in a fast emerging technology is open to students who have, at a minimum, an Associates Degree in a technical field. The program should be of interest to undergraduate students working towards a degree in a related field or to holders of B.S. degrees and above who want to develop skills and knowledge in a new area. Although many courses have pre-requisite math and physics requirements, some students may have the necessary academic or experiential background to obtain waivers from the program coordinator. Also, because of the advanced technical nature of this program some electives are at the graduate level. Students must have permission from the instructors to enroll in these advanced courses.

Required courses

17.133	Electro-Optic/Overview (3 credits)
17.479	Electro-Optics (3 credits)
17.461	Lasers and laser Systems (3 credits)
17.447	Fiber Optics in Telecommunications (3 credits)
17.462	Image Signal Processing (3 credits)

Electives (Choose 3)

17.427	Digital Signal Processing (3 credits)
17.463	Biomedical Electro-Optics
17.464	Industrial Electro-Optics (3 credits)
17.465	Digital Telecommunications (3 credits)
17.485	Communications Theory I (3 credits)
16.508	Quantum Electronics for Engineers (3 credits)
16.568	Electro-optics (3 credits)
16.610	Optics for Information Processing (3 credits)
16.722	Optical Materials (3 credits)

UMass Lowell Certificate Programs



Certificate in Data Communications

Networking is a multi-billion dollar industry. More and more hardware types are being adapted to an open architecture system. As these global trends accelerate, a large number of computing stations will need to be tied together, whether its a local area network (LAN), a wide area network (WAN), or connecting LANS to WANS. As a result, networking experience will become invaluable.

Potential career paths for those who successfully complete the certificate program are entry level positions as network administrators, technicians who can establish a LAN in an office environment, and technical personnel who can troubleshoot problems in a LAN installation. Systems analysts responsible for networking functions in large or small companies will also benefit from the program.

Required Courses

- 92.267 Programming
- 92.311 Introduction to UNIX Operating System
- 92.470 Data Communications
- 92.472 Local Area Networks
- 92.473 Computer Network Architecture and Protocols
- 92.475 Communications Network Management



Certificate in Plastics Engineering Technology

Competitive manufacturing systems are becoming increasingly vital in the changing global economy. Important components of the manufacturing processes are state-of-the-art plastics technology and trained plastics engineers and technologists. Taught by UMass Lowell's staff of international experts, the courses will provide students with practical instruction applicable to materials, processing and design engineering.

The program should be of particular benefit to technicians, process engineers and program development specialists. Course credits may be applied to the Bachelor of Science Degree, Plastics Technology Option.

Required Courses

- 27.201 Plastics Materials Science I
- 27.202 Plastics Materials Science II
- 27.217 Plastics Processing Lab
- 27.373 Mold Design I
- 27.401 Processing Technology I
- 27.402 Processing Technology II

Electives (Choose 3)

- 27.203 Plastics Materials Science III
- 27.301 Additives
- 27.303 Reinforced Plastics and Composites
- 27.376 Mold Design II
- 27.403 Physical Properties I
- 27.404 Physical Properties II
- 27.405 Mechanical Properties
- 27.406 Structure/Properties
- 27.407 Plastics Industry Organization
- 27.418 Product Design
- 27.425 Dynamic Mechanical Properties of Plastics I
- 27.426 Dynamic Mechanical Properties of Plastics II
- 27.440 Commercial Development
- 27.451-27.458 Selected Topics I-VIII



Certificate in Accounting

All enterprises involving money, whether large or small, profit or nonprofit, need a financial reporting system designed for their needs and require accurate financial reporting and analysis. While some accountants can work as public accountants, involving fee-based services to businesses and individuals, the majority of them work for a single employer as a managerial or financial accountant. Financial accounting is directed toward external users such as government agencies or stockholders, while managerial accounting is directed toward internal business decision makers and planners.

Given a healthy business environment, growth of jobs in the accounting area, according to the Mass. Dept. of Employment and Training, should increase by a third by 1995.

Required Courses (5)

- 67.101 Accounting Principles I
- 67.102 Accounting Principles II
- 67.203 Intermediate Accounting I
- 67.206 Cost Accounting I
- 69.231 Business Finance

Electives (Choose 2)

- 67.280 Accounting for Not For Profit Organizations
- 67.204 Intermediate Accounting II
- 67.207 Auditing
- 67.209 Federal Income Taxes



Certificate in Quality Assurance

As the United States focuses on the challenges of economic global competition, one of the key tools for sharpening our competitive edge for survival in the marketplace is the development of high quality standards for manufactured goods. Increasingly, American companies are seeking to refine the manufacturing process to produce the best product possible at the most cost-effective rate. The Certificate in Quality Assurance will provide engineers, technicians, and people working in manufacturing the training necessary to meet increasingly stringent customer demands and to make significant contributions to American companies as they improve the design, production, inspection, packaging and marketing of their products.

Required Courses

- 23.262 Engineering Data Analysis
- 23.314 Manufacturing Productivity (TQC in manufacturing)
- 23.416 Statistical Quality Control
- 23.426 Quality Certification/ISO 9000

Electives (Choose 3)

- 23.402 Engineering Measurement Lab
- 23.450 Reliability
- 23.310 Industrial Safety
- 19.401 Occupational Health
- 23.474 Design for Manufacture (Concurrent Engineering)
- 23.418 Quality Work Teams
- 23.318 Logistics Engineering
- 23.485 Advanced Quality Assurance



Certificate in Water Treatment

The EPA drinking water standards are now compelling many communities to provide complete treatment for public water supplies. Courses in this program are intended to provide students with the technical knowledge to operate and maintain physical-chemical water treatment facilities and water distribution systems. These courses will also prepare students for the Massachusetts water treatment certification exam.

Due to the new EPA regulations, within the next decade numerous communities will be constructing and operating new modern drinking water facilities in Massachusetts. Personnel in charge of these facilities will need to be certified. The most effective way to prepare for these certification exams is to complete the specialized courses taught by the University of Mass Lowell Continuing Education Department.

Personnel who should attend include: municipal officials who work in the area of water treatment and distribution as well as personnel seeking rewarding careers in this environmental area.

Water Treatment Certificate

(19 credits, 7 courses) A total of 7 courses: 5 required plus 2 electives

Required Courses

- 15.272 Water Supply & Treatment Operations I (3 credits)
- 15.274 Water Works Operations Lab I (1 credit)
- 15.372 Water Supply & Treatment Operations II (3 credits)
- 15.355 Water Distribution Systems (3 credits)
- 15.225 Water Chemistry I (3 credits)

Electives (Choose 2)

- 15.388 Pumps and Compressors (3 credits)
- 15.152 Water Biology (3 credits)
- 15.492 Water/Wastewater Plant Management I (3 credits)
- 15.374 Water Works Operations Lab II (1 credit)



Certificate in Purchasing Management

The purchasing function is an integral part of business management. Effective and efficient purchasing can have significant impact on a company's success. Purchasing functions and positions in purchasing are present in every type of business, nonprofit organization and government. Growth in purchasing opportunities are anticipated in the national health care industry and in Massachusetts, as envirotech, biotechnology and telecommunications manufacturing grow. State and federal government agencies as well as the military are also potential employment areas.

Purchasing managers must remain current and retain certification by continuing their education, through courses like those offered as part of this certificate program. One mark of competence is the designation Certified Purchasing Manager (C.P.M.) given by the National Association of Purchasing Management (NAPM). This certificate program has been designed in cooperation with the NAPM affiliate, the Purchasing Management Association of Boston.

Required Courses

- 67.202 Accounting Managerial
- 69.271 Operations Management
- 69.275 Total Quality Management
- 69.281 Purchasing Principles

Electives (Choose 3)

- 42.224 Business Writing
- 67.221 Marketing Principles
- 69.251 Personnel Management
- 69.282 Negotiations and Purchasing
- 90.240 Computer Applications in Purchasing



Certificate in Computer Proficiency

The need for professionals with a strong computer background will continue to increase as business, government, schools, and scientific organizations seek new applications for computers and improvements to the software already in use. Further automation of offices and factories, advances in health and medicine, and continuing scientific research will drive the growth of employment for computer professionals.

The requirements for earning this certificate include completion of 5 computer courses with a grade of "C" or better. Of these five courses, *Microcomputers and Applications Software and Introduction to PASCAL or Introduction to Programming Using "C"* are required for all participants. The remaining three courses can be chosen from a list of over 25 computer courses offered by Continuing Education (see partial listing below).

Students who earn this certificate may count the courses taken towards a degree in Information Systems.

Required Courses

- 92.202 Microcomputers & Applications Software
- 92.265 Introduction to Pascal (or 92.211 Introduction to Programming Using "C")

Electives (Choose 3)

- 92.219 Basic Programming
- 92.263 Fortran Programming
- 92.267 "C" Programming
- 92.268 C++ Programming
- 92.311 Introduction to UNIX Operating System
- 92.321 Discrete Structures I
- 92.360 Data Structures
- 92.363 Intro to Data Analysis (SPSSX)
- 92.364 Problem Solving with "C"
- 92.365 Cobol Programming I
- 92.368 Cobol Programming II
- 92.461 Systems Simulation and Modeling
- 92.468 Microcomputer Principles and Applications
- 92.470 Data Communications
- 92.474 Data Base Concepts



Certificate in Wastewater Treatment

The demand for municipal and industrial wastewater treatment plant operators is expected to increase well into the next decade. Courses are designed to provide basic knowledge to operating personnel and to prepare individuals for both the industrial and municipal wastewater certification exams.

Those who should attend include personnel desiring career paths in this dynamic field and those currently working in the field who want to upgrade their skills and be certified at higher grades. Courses are provided for both municipal (biological) plants and industrial (physical/chemical) treatment plant operations.

Wastewater Treatment Certificate

(17 credits, 7 courses) A total of 7 courses: 5 required plus 2 electives

Required Courses

- 15.261 Wastewater Treatment Plant Operations I (3 credits)
- 15.361 Wastewater Treatment Plant Operations II (3 credits)
- 15.263 Wastewater Treatment Lab I (1 credit)
- 15.363 Wastewater Treatment Plant Lab II (1 credit)
- 15.280 Industrial Waste Treatment (3 credits)

Electives (Choose 2)

- 15.152 Water Biology (3 credits)
- 15.492 Water/Wastewater Plant Management I (3 credits)
- 15.388 Pumps and Compressors (3 credits)
- 15.452 Operation & Maintenance of Wastewater Collection Systems (3 credits)
- 86.131 Environmental Chemistry I

COMMUNITY EDUCATION (Noncredit) Course Listing

NONCREDIT COURSE LISTING

If you have any questions regarding the Community Education Noncredit Courses, please call the Office of Community Education at (508) 934-4996.

The session in which the course is offered can be found under each course number. Unless otherwise noted the Summer Session dates are:

Summer I (May 23 - June 30, 1994)
Summer II (July 11 - August 19, 1994)

See registration dates and procedures on page 2.

Fax-in Registration for Noncredit Courses

In addition to the registration procedures listed on page 2, you may also register for the Community Education Noncredit Courses by fax:
To register by fax (noncredit courses only): Fill out registration form on page 18. Be sure to include your MasterCard or Visa account number and expiration date. Fax it to (508) 441-0236.

Your classroom assignment and confirmation will be mailed to the address listed on the registration form.

Due to the unique nature of the Community Education noncredit courses, registrations cannot be accepted after the first class meeting.

Tuition and fees

The tuition is indicated after each course description. There is a registration fee of \$15.00 which is listed on the registration form. In addition to the tuition and fees listed, certain courses require the purchase of materials and equipment. Every effort is made to keep these additional expenses to a minimum.

Withdrawal

Students withdrawing from any class must notify the Office of Continuing Education immediately on forms provided by the office. Verbal messages to faculty or staff do not constitute official notification.

Class Cancellations

If classes are cancelled due to insufficient enrollment, full tuition and fees will be refunded.

Refunds (Noncredit courses)

Participants who withdraw before the first class meeting will receive the total amount paid excluding the \$15.00 registration fee. Participants who withdraw following the 1st class meeting will receive a 50% refund excluding the \$15.00 registration fee. No refunds are given for withdrawal after the 2nd class meeting.

Senior Citizen Waivers

Participants who are 60 and older may register for a Community Education course on a "space available" basis without payment of tuition charges. A fee payment of \$15.00 per course will be charged and there may be a charge for class materials or texts.

PLEASE NOTE: Courses marked with an asterisk(*) are not available at the reduced tuition rates for senior citizens, state employees, etc.

ART

Basic Drawing Techniques: From Still Life to Human Figure 01-01 Summer I & II

Instructor: David Lowrey
A variety of drawing assignments from still life to figures using different drawing media. The class will cover the principles of drawing as well as life drawing using the "right side of the brain."
Tues: 7:00-9:30 pm-6 weeks-Tuition: \$50.00

Intermediate Drawing Techniques 01-02 Summer I & II

Instructor: David Lowrey
A continuation of 01-01. Students in this class are expected to have some drawing skills.
Wed: 7:00-9:30 pm-6 weeks-Tuition: \$50.00

Portrait Drawing/Painting 01-03 Summer I & II

Instructor: David Lowrey
This course covers the techniques of drawing and painting the human face. Students may work in pastels or oils and advance at their own pace.
Mon: 7:00-9:30 pm-6 weeks-Tuition: \$50.00

Woodcarving 01-06 Summer I

Instructor: Rupert Stangroom
Designed for beginners, this course covers basic carving with knives and gouges in round and relief design as it applies to the characteristics of wood.
Mon: 7:00-9:30 pm-6 weeks-Tuition: \$50.00

Beginning Decorative Painting 01-13 Summer I & II

Instructor: Angela Harkins
You will be painting a series of articles starting with a welcome slate. Other items include a country village bowl, primitive scene barrel staves, a bentwood box, and an Amish prairie plaque.
Thurs: 6:00-9:00 pm-6 weeks-Tuition: \$50.00

Basics of Celtic Design 01-15 Summer I & II

Instructor: Arthur Ketchen
An introduction to the art of the Celts of Ireland, Britain, and Europe, best known in the Book of Kells. Interlace, Keyboard, Spiral, and LaTene motifs will be covered. Materials needed: one fine tip felt pen, one pad of quality white paper, one medium hard pencil, eraser, one straight edge or ruler.
Tues: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

Calligraphy I 01-12 Summer I & II

Instructor: Sr. Cecile Duquette, s.c.o.
The development of calligraphy will be examined, while students work on lettering techniques. Projects will include greeting cards, diploma or birth announcements, quotes, etc. Students will be given a list of supplies to be brought to the second class.
Mon: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

Calligraphy II 01-16 Summer I & II

Instructor: Sr. Cecile Duquette, s.c.o.
Prerequisite: Calligraphy I. Students will further develop the skills of Chancery Cursive (Italics) while at the same time explore and learn two other different styles of calligraphy. Activities will include: logos, titles, book jackets, quotes, designs, menus, labels, posters, etc. A project is required.
Mon: 7:30-9:30 pm-6 weeks-Tuition: \$42.00

Color Painting with the Three Color Method 01-18 Summer I & II

Instructor: Arthur Ketchen
Students will learn to paint in oils, color pencil, and gouache using the three color method of three primary colors (magenta, cyan, yellow, plus black and white). The course will begin with simple exercises, including gray scale and color combinations and work up to developed landscapes, still lifes, and figures. Materials list available, some materials available from instructor.
Sat: 12:00-2:30 pm-6 weeks-Tuition: \$50.00

Painting in the Out of Doors 01-19 Summer I & II

Instructor: Arthur Ketchen
This course will go to a variety of locales to paint seascapes, landscapes, and cityscapes.
Sat: 9:00-11:30 am-6 weeks-Tuition: \$50.00

Caricature Carving 01-20 Summer I

Instructor: Rupert Stangroom
Learn to carve faces, figures and animals in-the-round, in a caricature style; including "flat plane" carving. Cut-outs will be available. Painting and tool sharpening will also be covered. Some basic knowledge of woodcarving is desirable.
Wed: 7:00-9:30 pm-6 weeks-Tuition: \$50.00

NEW Origami A 01-22 Summer I

Instructor: J. Robert A. Lemieux
An introduction to origami, the art of paper folding. Learn to fold a dog, a flapping crane and other objects as time permits. Bring a crisp dollar bill and fold it into an interesting object. Enrollment is limited.
Sat: 9:00 am-12:00 noon-1 day-5/28/94-Tuition: \$8.00

NEW Illustration Studio 01-23 Summer I

Instructor: Robin Hansen-Cole
This course focuses on the development of an illustration, from conception of an idea to its final reflection as a painting or drawing. The instructor, a professional illustrator, will work with students in a variety of media (watercolor, ink, pencil), sharing techniques and methods. Please bring paints, pencils, ink and paper. All skill levels are welcome.
Wed: 5:30-8:30 pm-6 weeks-Tuition: \$50.00

DANCE

NOTE: All participants must sign a statement of physical condition the first night of class.

Self Discovery Through Dance 02-03 see date below

Instructor: Lynn Simon
Dance as an expressive art can be a powerful tool for change. This will be an opportunity to explore movement, breathing, visualization, rhythm, improvisation, sound and music. As we become aware of the energy of the present, we clear away limitations and boundaries that exist in our minds. Wear comfortable clothing or a leotard and tights without feet.
Sat: 1-3 pm-6 week-Summer I only
Tues: 7:45-9:30 pm-6 weeks-Summer II only
Tuition: \$35.00

Ballroom Dancing 02-05 Summer I & II

Instructor: Claire LeClair
The class will pick three of the following dances this semester: Waltz, Fox-trot, Cha-cha, Swing, Mambo, Meringue, Tango, Rhumba, Disco and Lambada.
Tues: 7:00-9:00 pm-6 weeks-Tuition: \$42.00

MUSIC AND LITERATURE

Kindred Spirits? Louisa May Alcott 04-03 see date below

Instructor: Hope Luder
Little Women and Anne of Green Gables are among the most loved books in children's fiction. Why have many readers felt so enriched by these and other children's books? Partly because of the individualism of their authors. "Louisa" and "Maud" were highly-complex, intelligent, passionate and idealistic women. The lives of each will be discussed, largely in their own words, and then the class will share what appeals to them about these people and their works and how they may have influenced us. Bring several of your favorite children's books and some favorite passages. Older children and family groups are welcome.
Sat: 10:00 am-12:30 pm-1 day -5/28/94-Tuition: \$10.00

COLLEGE FOR

YOUNG ADULTS

The following list of Community Education Noncredit courses have been designed for students ages 13-17. Although these courses are primarily geared towards young adults, they are open to everyone. Please follow the same registration procedures listed in the Community Education section of this tabloid.

*Whittling and Knife Work YA 01-08 Summer I

Instructor: Rupert Stangroom
Carve an animal, a tie slide, a spoon, a totem, and more. Learn to use a knife, sharpen it, and handle it safely. Tools needed: a jack knife or woodcarving knife.
Sat: 9:30 am-12:00 noon-6 wks-Tuition: \$50.00

Assertiveness Training for Students YA 05-01 Summer I

Instructor: David L. Favreau, M.Ed., L.M.H.C.
Designed especially for students between the ages of 12-18 who would like to develop their assertive skills improve their ability to handle interpersonal communication by developing self-discipline, and learn to deal with peer pressure and anxiety. Each week there is a weekly assignment and a certificate is presented upon completion of the course.
Wed: 5:30-7:30 pm-5 weeks-Tuition: \$35.00

Beginning Conversational French YA 08-06 Summer I & II

Instructor: Emile Tabea
Designed for the young adult who wishes to get better grades in writing and speaking French with little or no knowledge of the French language. A conversational approach will be taken emphasizing vocabulary, correct pronunciation, and proper word order.
Sat: 8:30-10:30 am-6 weeks-Tuition: \$42.00

*SAT Verbal Skills Workshop YA 11-12 Summer I & II

Instructor: Cathy Campbell Ronan, M.Ed., C.A.G.S.
This course is designed for high school students who will be taking the SAT's for college admission. The focus is on reading comprehension, and covers specific topics including analogies, antonyms, synonyms and other important SAT information. Students will also be taught time constraint techniques that will prepare them for College Board testing.
Tues: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

Writing & Illustrating Children's Books 04-04 Summer I & II

Instructor: Robin Hansen-Cole
This course will focus on writing and illustrating a children's book and preparing a finished dummy for publishers. The course is taught by an award winning illustrator and author of children's books who has illustrated for Cricket, Tornado, Ladybug & Cobblestone magazines.
Tues: 6:00-9:00 pm-6 weeks-Tuition: \$65.00

Writing & Illustrating Children's Books-Part II 04-05 Summer II

Instructor: Robin Hansen-Cole
This course is designed as a workshop for those who are prepared to work on writing and illustrating in class. Knowledge of basic structure is required.
Thurs: 6:00-9:00 pm-6 weeks-Tuition: \$65.00

Mythology is Alive and Well 04-15 Summer I

Instructor: Milton Paisner
This course will examine mythologies of many countries, with particular attention to their explanations of the creation of the world, of fertility and of death. We will study classical "heroes" and look for modern counterparts.
Thurs: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

Reflective Reading 04-20 Summer I

Instructor: Sr. Suzanne Marie, s.c.o.
At the end of the working day, have you had enough of business, reasoning, and tedious work? This course is designed to help you to escape stress by learning how to be reflective. No text will be necessary - the use of different authors, scripture, etc. will provide ample reflective material. A simple reflection paper will be suggested to obtain the Continuing Education Certificate of Participation.
Mon: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

COMMUNITY EDUCATION (Noncredit) Course Listing

NEW

Sex and Violence in the MEDIA 04-22

Instructor: Martha Paisner Summer I & II

When does free speech end and protection begin? Join us for a discussion of this complex problem. What should we do about violence and sex on television, radio, videos, records and tapes? Learn about the groups and organizations fighting for censorship, practitioners of the arts seeking creative freedom, and groups and organizations fighting to protect their freedom of speech.

Thurs: 5:30-7:30 pm-6 weeks-Tuition: \$42.00

NEW

The American West: Its Heroes and Natural Wonders see date below

Instructor: Hope Luder

Wyatt Earp of Tombstone, Daniel Boone, Johnny Appleseed, Custer, Sitting Bull, Sacajawea, Annie Oakley, Jesse James... Who are the heroes and who are the villains and why is it not always so clear any more? Equality, waste, violence, a sense of wonder - what is the mixed legacy of a frontier? Slides will show 19th century photos and paintings of frontier people and the magical natural wonders and beauties of the Far West. Sat:10:00 am-12:00 noon-1 day -6/4/94-Tuition: \$10.00

NEW

American Indian Culture 04-24

Instructor: Hope Luder see date below

Recently in the film *Dances With Wolves*, the Dr. Quinn television series, and in many other films and books, Native Americans are being portrayed more favorably than ever. Lecture, discussion, slides and handouts will review Indian history, arts, ceremonies, and attitudes toward nature, land, community, men and women, child rearing and healing. Sat: 10:00 am-1:00 pm-1 day -6/11/94-Tuition: \$10.00

CAREERS & COMMUNICATING

*ConFigurations: Dressing to Flatter Your Figure 05-14

Instructor: Cyndi Lavin Hurley

Have you noticed that no amount of exercise, diets, or miracle cures will truly reshape your basic body type? Stop fighting against yourself and learn how to choose the clothing that will best balance your figure! ConFigurations is the computer-assisted method of selecting figure flattering styles from thousands of possible combinations. A personal ConFigurations booklet will be printed for you to reinforce what you learn in class and to aid you in shopping. (Booklet will be available 7-10 days after class) Sat:10:00 am-12:00 noon-1 day-6/4/94-Tuition: \$50.00

The Anger Workshop 05-20

Instructor: David Favreau, M.Ed., LMHC, LCSW

Are you having difficulty controlling your anger? Do you bottle it up, or do you blow it out? Do you know how to manage your anger, or does it manage you? The Anger Workshop is for individuals seeking to express their feelings of anger in an assertive, yet controlled manner. Emphasis is on appropriately expressing anger and identifying the sources and feelings of anger. Mon: 5:30-7:30 pm-5 weeks-Tuition: \$35.00

NEW

Relapse Prevention Workshop 05-21

Instructor: David Favreau, M.Ed., LMHC, LCSW

A self-help, skill-building program designed to assist individuals in lessening or preventing a relapse of emotional illness or chemical dependency. This workshop will address such issues as dealing with denial and fears, identifying relapse symptoms, managing anger, and developing an effective self-help plan. There will be weekly assignments and a certificate of participation will be awarded upon completion of the program. Sat: 10:00 am-12:00 noon-5 weeks-Tuition: \$35.00

What Color Was Her Parasol? Women, Work, and Wages in 19th Century New England: A Colloquium (05-25)

June 11, 1994

Sponsored by The Women's History Consortium of Concord* and UMass Lowell Continuing Education

9:00-9:30	Registration and Coffee
9:30-11:00	"Three Mill Girls"—A Living History Presentation by Marcia Estabrook of Characters Educational Theater
11:00-12:00	Women and the Work Experience (Panel Discussion)
12:00-12:45	"Lunch with Mrs. Larcom" Box Lunch and Conversation
12:45-1:30	A Tour of the Working People Exhibit and Boarding House
1:30-2:30	Lowell National Park
	Louisa May Alcott's Christie Devon on "Work and Women's Options—A Living Literature" Interpretation by Jan Turnquist of Inter-act Performances
2:45-3:30	Further Views on Women's Options (A Panel Discussion)
3:30-4:00	What Did Your Grandmother Do? Concluding Remarks and Discussion

*The Women's History Consortium of Concord is composed of staff from Orchard House (home of the Alcotts), the Concord Museum, The Old Manse, The Fruitlands Museums (Harvard, MA) Characters Educational Theater, and Inter-act Performances, as well as faculty and students from the American Studies Program of UMass Lowell.

Tuition: \$20.00 plus the \$15.00 registration fee.

FINANCE & REAL ESTATE

Actions taken as a result of these courses is the sole responsibility of the participant. UMass Lowell assumes no responsibility.

Personal Financial Planning 06-01

Instructor: Gary Breda

Summer I & II

This course will cover a wide spectrum of personal money management topics including: building a financial plan, savings, insurance, tax-advantaged investments, real estate investments, stocks and bonds, personal budgeting, financing children's education, retirement planning and investing in your IRA/Keough. Tues: 7:30-9:30 pm-4 weeks-Tuition: \$30.00

Lower the Cost of a College Education 06-05

Instructor: Bonnie Hepburn, CFP

See date below

For parents of high-school students, this one-day workshop is a must! Areas covered include: maximizing your eligibility for financial aid; making the equity in your house work for you instead of against you; and selecting investments that help fund an education. Sat:10:00 am-12:00 noon-1 day-8/13/94-Tuition: \$10.00

HEALTH & FITNESS

NOTE: All participants must sign a statement of physical condition the first night of class.

Stretch and Relaxation 07-02

Instructor: Lynn Simon

see date below

With soft, soothing music, we will learn the "right" way to stretch to feel good, to release stress and tension, and to improve coordination and flexibility. Simple yoga stretching exercises and breathing techniques will be taught. NOTE: Please bring a small mat, towel or blanket. All participants must sign a statement of physical condition. Thurs: 6:30-7:30 pm-6 weeks-Summer I only Tues:6:30-7:30 pm-6 weeks-Summer II only Tuition: \$35.00

*Yoga 07-04

Instructor: Lynn Simon

see date below

The slow-motion exercises of yoga relieve tension and stress, while strengthening and toning the body and energizing the mind. NOTE: Students should wear comfortable clothing and bring a small mat, towel or blanket. All participants must sign a statement of physical condition. Session A: Mon, 6:30-8:00 pm-6 wks-Summer I & II Session B: Sat, 9:30-11:00 am-6 wks-Summer I only Tuition: \$60.00

*Meditation 07-05

Instructor: Lynn Simon

see date below

Meditation is a natural, useful tool to help us "let go" and regain control of body and mind. It can improve concentration, heighten creativity and awareness, and calm the body through "relaxation response." NOTE: Students should wear comfortable clothing and bring a small mat, towel or blanket. All participants must sign a statement of physical condition. Session A: Mon, 8:15-9:30 pm-6 wks-Summer I & II Session B: Sat, 11:15-12:30 pm-6 wks-Summer I only Tuition: \$50.00

LANGUAGE & CULTURE

Survival Spanish for Business & Travel 08-01

Instructor: Anne Carlson

see date below

Find out how easy it is to get around in Spanish in this fun and entertaining class. In just six hours, you'll learn how to greet people and introduce yourself, how to ask for and understand basic directions, and how to exchange money in a bank. Along with many cultural tips, you'll even learn how to order food in a restaurant, how to barter for items in a market, how to say what you like and don't like, give directions to a taxi driver, and more. Learn the easy way - with no written homework or formal grammar - and have fun doing it! An additional \$30.00 fee to cover cost of the manual and audio cassette tape will be collected by the teacher at the 1st class. Section A: Tues, 6:30-9:30 pm-2 wks-June 21 & 28 Section B: Wed, 6:30-9:30 pm-2 weeks-July 13 & 20 Tuition: \$20.00

Survival French for Business & Travel 08-02

Instructor: Anne Carlson

see date below

Find out how easy it is to get around in French in this fun and entertaining class. In just six hours, you'll learn how to greet people and introduce yourself, how to ask for and understand basic directions, and how to exchange money in a bank. Along with many cultural tips, you'll even learn how to order food in a restaurant, how to barter for items in a market, how to say what you like and don't like, give directions to a taxi driver, and more. Learn the easy way - with no written homework or formal grammar - and have fun doing it! An additional \$30.00 fee to cover cost of the manual and audio cassette tape will be collected by the teacher at the 1st class. Wed: 6:30-9:30 pm-2 wks-Aug.3 & 10 - Tuition: \$20.00

Beginning Conversational French 08-06

Instructors: Roger Lacerte, and Emile Tabea

Summer I & II

Designed for the beginner with little or no knowledge of the French language. A conversational approach will be taken emphasizing vocabulary, correct pronunciation, and proper word order. Section A (Lacerte): Tues, 7:30-9:30 pm-6 weeks Section B (Tabea): Sat, 10:30 am-12:30 pm-6 weeks Tuition: \$42.00

Continuing Conversational French 08-07

Instructors: Roger Lacerte and

Emile Tabea

A continuation of Beginning Conversational French, providing additional exposure to the French language. Section A (Lacerte): Wed, 7:30-9:30 pm-6 weeks Section B (Tabea): Mon, 6:30-8:30 pm.-6 weeks Tuition: \$42.00

Advanced Conversational French 08-08

Instructors: Roger Lacerte and

Emile Tabea

Designed to give students who have mastered the essentials of oral French (pronunciation, intonation, and word order) further practice and also to develop reading and simple writing skills. Section A (Lacerte): Thurs, 7:30-9:30 pm-6 weeks Section B (Tabea): Wed, 7:00-9:00 pm-6 weeks Tuition: \$42.00

English as a Second Language for Beginners 08-14

Instructors: Starr Pipials and

Alexander Boch

Intended to help the beginning student who is somewhat familiar with the English language, and has a verbal and written skill level equal to the 4th or 5th grade. This course includes drilling in the basics of grammar, usage, and vocabulary words. Section A (Pipials): Tues, 6:30-8:30 pm-6 weeks Section B (Boch): Sat, 10:00 am-12:00 noon-6 weeks Tuition: \$50.00

English as a Second Language for Advanced Beginners 08-15

(Skill equivalent to grades 6 & 7)

Instructor: Gail Anne Desmond

This course is designed to help the beginning student who is somewhat familiar with the English language. Extensive drilling in the basics of grammar, usage and vocabulary words. Tues: 6:30-8:30 pm-6 weeks-Tuition: \$50.00

English as a Second Language for Intermediates 08-16

(Skill equivalent to grades 8 & 9)

Instructor: Sr. Cecile Duquette

Intended to help the student who has already acquired some knowledge of the English language. It is designed to further develop the mechanics of grammar and usage. Intense practice in building a larger vocabulary. Thurs: 5:30-7:30 pm-6 weeks-Tuition: \$50.00

English as a Second Language-Advanced 08-17

(Skill equivalent to grades 10 & 11)

Instructor: Sr. Cecile Duquette & Gail Anne Desmond

Designed for students who have English grammar and usage skills at a verbal and written skills level equal to the 10th or 11th grade. Through intense practice of vocabulary skills, students will feel more comfortable using the English language at work and at home. Section A (Duquette): Wed, 5:30-7:30 pm-6 wks Section B (Desmond): Sat, 10:00 am-12:00 noon-6 wks Tuition: \$50.00

*English Pronunciation for Foreign-Born Speakers I 08-18

Instructor: Gail Anne Desmond

Developed for those who have a good command of the English language, but find their accent to be a problem. In this class, students will improve the listening skills necessary to discriminate between sounds. A personal speech analysis and participation in drill activities to improve pronunciation patterns will also be a part of the class. Students are encouraged to bring a tape recorder and blank cassettes to class. Section A: Mon, 6:00-7:30 pm-6 wks-Tuition: \$70.00 Section B: Mon, 7:30-9:00 pm-6 wks-Tuition: \$70.00

English as a Second Language - Writing for Everyday Use 08-20

Instructor: Sr. Cecile Duquette, s.c.o.

The class will begin by writing simple sentences, followed by more complex ones, then proceed to writing short, informal compositions. Through the use of straightforward sentences, appropriate and meaningful vocabulary, spelling and grammar, students will also learn to further develop proofreading and paragraphing. Tues: 5:30-7:30 pm-6 weeks-Tuition: \$50.00

LOWELL & HISTORY

The Architecture of Lowell 09-02

Instructor: Stephen Stowell

Summer I

Explore the architectural and physical development of Lowell, its residential, commercial, institutional, and industrial structures as well as streets, canals, and public spaces. Topics covered include the influence of historic architectural styles, the city's physical evolution, and historic preservation. Classroom discussions will be supplemented by walking tours. Tues: 7:00-9:00 pm-6 weeks-Tuition: \$50.00

House Histories 09-03

Instructor: Stephen Stowell

Summer I

Discover how to trace the genealogy of any house or building. Follow the trail of old books, photographs, maps, atlases, building records, and other clues. The basics of architectural research will be examined including an overview of historic architectural styles and research methods. Sat: 10:00 am-12:00 noon-6 weeks-Tuition: \$50.00

COMMUNITY EDUCATION (Noncredit) Course Listing

SUMMER 1994

DESKTOP PUBLISHING PROGRAM



Desktop Publishing—An Introduction to PageMaker

11-20

Instructor: Gretchen Wichtermann, Graphic Designer, President, Wichtermann Graphics
This hands-on workshop will provide a step-by-step introduction to Aldus® PageMaker. Initial topics will include opening a new or preexisting PageMaker publication or template, formatting the page(s), placing and manipulating graphics and text blocks, defining text styles and attributes, setting up master pages, and using column guides. Prerequisite: Students should have basic, hands-on familiarity with the Macintosh.
Limit: 10— Mon & Thurs: 7-9:30 pm—3 wks
Class begins May 16—Tuition: \$200.00

Advanced PageMaker

11-22

Instructor: Gretchen Wichtermann
Advanced PageMaker picks up where An Introduction to PageMaker leaves off. With the basics now under your belt, the gap between knowing the mechanics of PageMaker and actually having experience will be closed. Advanced PageMaker concentrates on gaining valuable hands-on experience and using advanced features while producing:
• Newsletters • Ads • Long Documents
• Flyers • Brochures • And much more!
Prerequisites: An Introduction to PageMaker or equivalent and any word processing program.
Limit: 10—Mon: 7-9:30 pm—6 wks
Class begins June 13—Tuition: \$200.00

Religions of Lowell

09-07 Summer I

Instructor: Virginia Kimball, Lowell Sun Religion Correspondent
This is an opportunity for teachers, counselors, and those interested in the cultural diversity of religious expression in Lowell to learn about the faiths of people living in the city. It will provide ideas for inclusive cultural teaching and understanding. The course includes explanation of the beliefs, customs and traditions of Catholic, Episcopal, Greek Orthodox, Jewish, Hindu and Buddhist believers. The schedule of class visits is:
May 25 (Wed), 7-9 p.m: Intro to Judaism & Greek Orthodoxy (on campus)
May 28 (Sat), 9 am-12 noon: Visit to Jewish Synagogue (off campus)
May 29 (Sun), 9 am-12 noon: Visit to Greek Orthodox Church (off campus)
June 1 (Wed), 7-9 p.m: Intro to Catholic & Protestant Christianity, Hinduism and Buddhism (on campus)
June 4 (Sat), 9 am-12 noon: Visit to St. Patrick's & St. Anne's Historical Museums and Tour of Churches (off campus)
June 5 (Sun), 9 am-12 noon: Visit to Hindu Temple
Tuition: \$50.00

Celtic Civilization 09-12 Summer I
Instructor: Arthur Ketchen
This course will offer an overview of the civilization of the Celts and their descendants (Irish, Scots, Manx, Welsh, Cornish, Bretons, Gallegos, Asturians, Basques) all over Europe and the world. Guest speakers will address particular areas of Celtic culture, such as music, visual arts, language or law.
Thurs: 6:00-8:00 pm—12 weeks—Tuition: \$84.00

Are They My Poor? Poverty & Public Policy of Town & City 09-15 Summer I
Instructor: Dr. Paul Hudon
Using Chelmsford and Lowell as examples, this course will examine the changes in public policy towards the poor that came with the evolution of towns into cities. The course will look at changes in the sources of policy, the dimensions of the problems, and the scale of resources (local, state, and national). It will use language to monitor the social changes that gave us unemployment, hunger, homelessness, underprivileged, underclass, and the difference between "care" and "management."
Wed: 6:30-8:30 pm—6 weeks—Tuition: Free (Please note the \$15.00 registration fee must be paid.)

SPORTS & RECREATION

Fly Tying 10-02 Summer I
Instructor: Jack Johnson
Basic Fly tying instruction covering the dry fly, wet fly, streamer, bucktails, and salmon flies. Tying techniques for other types of flies to be used for salmon, trout, bass and saltwater fishing. Limit: 12 students.
Tues: 6:30-9:30 pm—7 weeks—Tuition: \$70.00

Fly Fishing 10-03 Summer I
Instructor: Jack Johnson
This comprehensive course will teach the beginning fly fisher the history, equipment, quarry, habitat, behavior of fish, casting and many other aspects of fly fishing as a recreational sport.
Wed: 6:30-9:30 pm—7 weeks—Tuition: \$70.00

Wine Tasting Workshop - Connoisseur 10-08 Summer I
Instructor: Charles Saunders
An introduction to the major wine regions, varieties & types. Tasting and serving techniques will be explored, along with the fundamentals and uses of wine. Approximately 25 wines will be tasted. An additional charge of \$25.00 to cover the cost of the wines is due at the first meeting. Students must be of legal drinking age.
Tues: 7:00-9:30 pm—6 weeks—Tuition: \$45.00

Wine Tasting Workshop - Advanced - Oenophile 10-09 Summer I
Instructor: Charles Saunders
A follow-up to 10-08, this workshop takes a more detailed look at specific regions. Tasting, selecting, cellar and serving techniques will be covered along with a review of the Davis grading system. Approximately 35 wines from Beaujolais, Loire Atlantique, Vouvray, Sancerre, Australie, Bordeaux, Burgundy, Alsace, Germany and dessert wines will be tasted. An additional charge of \$35.00 to cover the cost of the wines will be collected at the first meeting. Students must bring two glasses to each class. Students must be of legal drinking age.
Mon: 7:00-9:30 pm—6 weeks—Tuition: \$45.00

***Basic Gun Safety Course** 10-12 Summer I & II
Instructor: Greg Danas, President Instructional Shooting Inc.
The objective of this course is to teach the basic knowledge, skills and attitude necessary for the safe and proper use of a pistol in shooting a stationary target. This course includes training on gun parts and operation, ammunition, safety, cleaning, storage, loading procedures, shooting fundamentals and pistol sports and activities. Students participate in range firing exercises under the supervision of three instructors. Upon successful completion of this training, certification is provided to you and local licensing authorities that you have qualified to safely and knowledgeably handle a firearm under the provisions of Massachusetts Law. The course fee includes everything from textbooks to ammunition used.
Section A: Sat, 8:00 am-8:00 pm—6/18/94
Section B: Sun, 8:00 am-8:00 pm—7/24/94
Tuition: \$120.00

SKILL ENHANCEMENT & REFRESHER COURSES

Refresher Course in Gregg Shorthand 11-04 Summer I
Instructor: Sr. Suzanne Marie, s.c.o.
A complete review of Gregg Shorthand theory, brief forms, reading and writing practice, dictation and transcription skills.
Thurs: 5:30-7:30 pm—6 weeks—Tuition: \$42.00

***Introduction to Keyboarding** 11-05 Summer I
Instructor: Claire Bickford
Build your speed and confidence. This course is for students who have little or no experience on typewriters or computers. Using IBM® compatible personal computers, students will learn the basic alpha and numeric keys.
Sat: 9:00-11:00 am—6 weeks—Tuition: \$42.00

Introduction to the Macintosh®-Advanced 11-38 Summer I
Instructor: Joanne Gagnon-Ketchen, M.Ed., Curriculum and Instruction Technology
This course will cover advanced word processing techniques such as footnoting, merge letters, columns and tables as well as using graphics in word processing and an introduction to desktop publishing. Students should have some prior experience using the Macintosh.
Tues: 6:30-8:30 pm—7 weeks—Tuition: \$55.00

HOME & DESIGN

Introduction to Floral Design 12-05 Summer I
Instructor: Collette Ruter
Basic rules of floral design, using silk and dried materials will be taught. Decorating for the different seasons and holidays will also be covered. Students will bring their own supplies to class (containers and flowers). On the first night, learn how to make bows the professional way! (Please bring scissors.) A list of supplies and suppliers will be given to the students.
Thurs: 6:30-9:30 pm—6 weeks—Tuition: \$50.00

Introduction to Antiques, Collectibles and Auctions 12-11 Summer I
Instructor: John W. Francis, AAAAA
An introductory course designed for people new to collecting antiques, or for those in possession of antiques who want to know more about them and their values. Glass, pottery, porcelain, folk art and primitives, as well as buying and selling successfully at auctions will be discussed. Slides, videos and actual antique pieces will be used to illustrate important concepts. Time will be set aside during each class to appraise antiques brought in by class members.
Wed: 6:30-9:30 pm—6 weeks—Tuition: \$55.00

Registration Form for Credit and Non-Credit Courses



PLEASE USE INK AND PRINT

U/Mass Lowell
Offices of Enrollment Services/DCE
One University Avenue
Lowell, MA 01854-2881

Social Security No. _____

Name _____ (Last) (First) (Middle)

Street & No. _____

City & State _____ Zip Code _____

Are you a veteran with benefits? yes _____ no _____

✓ CHECK APPROPRIATE REGISTRATION STATUS:
☐ Summer I May – June
☐ Summer II July – August
☐ Graduate/Graduate Education
☐ Noncredit Community Education

Date _____
Sex: M _____ F _____ Date of Birth _____
Work Phone () _____
Home Phone () _____
Handicap? yes _____ no _____

COURSES FOR WHICH YOU ARE REGISTERING			
COURSE NUMBER	COURSE TITLE	CREDITS	OFFICE USE
	Summer I		
	Summer II		

Complete if paying by Credit Card:
MASTERCARD ☐ VISA ☐ ACCT. NO. _____
Expiration Date _____ Customer Signature _____

Tuition and Fees	
Registration Fee	
Credit	\$ 25.00
Non Credit	\$ 15.00
Tuition	
Lab	
Late Fee	
Other	
Total	\$.

For Office Use

Introduction to American Furniture 12-12
Instructor: John W. Francis, AAAA **Summer I**
 This is an introductory course focusing on three hundred years of American antique furniture. History, styles, construction, hardware, good vs. poor quality and fakes will constitute a major portion of this course. Additional topics (such as selling practices at auction houses and dealer markets) will also be included. Tips on when to avoid an antiques dealer and when to trust one.
 Thurs: 6:30-9:30 pm—6 weeks—Tuition: \$55.00

Antiques III: "The Business" 12-16
Instructor: John W. Francis, AAAA **Summer I**
 For individuals interested in the business of buying and selling antiques and collectibles. The course will aid novice dealers, would-be dealers and collectors, as well as any antique buff interested in understanding what is involved in being a "dealer." Buying, pricing and selling will be examined along with who and where to buy from and the most profitable ways of selling.
 Tues: 6:30-9:30 pm—6 weeks—Tuition: \$45.00

NEW Quilter's Potpourri 12-18
Instructor: Fran Ward **Summer I**
 If you have completed a beginner's quilting class and would like to continue meeting with old friends and new... if you want to try a new technique but feel that you need guidance... or if you need motivation to complete your project... then come join our quilting group. Bring your project, share ideas, or choose from a selection of Fran's quilting patterns. You will plan your project at the first meeting.
 Wed: 7:00-9:00 pm—6 weeks—Tuition: \$42.00

PARALEGAL

NEW SEMINARS FOR PROFESSIONAL DEVELOPMENT

A summer seminar series designed to focus specifically on the skills a paralegal must master for success.

Paralegal training must involve more than just the law. A well trained paralegal understands the procedural aspects of a law practice and can execute the functions and documents required on a day to day level.

***Advanced Litigation** 14-01
Instructor: Attorney Patricia Hohl, Litigation Attorney, and Paralegal instructor for the past 7 years
 Whether you are just entering the litigation field or want to broaden your role as a litigation paralegal, you need to understand and master the functions that support litigation. From the initial client interview to the appeal, a paralegal performs a variety of functions. The more you know, the more interesting your job will be.
 Sat: 9:00 a.m.-1:00 p.m.—1 day—6/4/94
 Tuition: \$40.00**

***Real Estate Skills** 14-02
Instructor: Attorney Damon Thomas, Practicing Attorney in Haverhill, MA, specializing in real estate and probate law.
 Paralegals execute and coordinate most real estate closings. Will you be ready when asked? Learn the how-to basics of a real estate closing, the Registry of Deeds, and understand the ethical considerations involved.
 Sat: 9:00 a.m.-1:00 p.m.—1 day—6/18/94
 Tuition: \$40.00**

***Informational Research** 14-03
Instructor: Attorney Patricia Hohl
 Most paralegals know how to perform legal research but just as important is how to perform informational research. Information and documents are needed to evaluate cases and prove facts. Paralegals are often asked to investigate a corporation, research assets of an estate, obtain liquor or dairy license applications, discover if a dentist has previously been sued, get a weather report for a year ago, and find an interpreter for a criminal defendant. Where would you begin?
 Sat: 9:00 a.m.-1:00 p.m.—1 day—7/9/94
 Tuition: \$40.00**

***Probate Skills** 14-04
Instructor: Attorney Damon Thomas
 You will enter the Probate Court with confidence after you learn how it operates for estate and family issues. Probate and Family Court are very form oriented. Learn how to probate an estate and complete the forms for most probate or family matters.
 Sat: 9:00 a.m.-1:00 p.m.—1 day—8/6/94
 Tuition: \$40.00**

For further information, or a brochure describing the seminar series, please call Cathy Kendrick at 508-934-2495. Since space is limited, early registration is encouraged.

**Please note that students who register for all four seminars can take advantage of a special tuition rate of \$130.00.

UNIVERSITY OF MASSACHUSETTS • LOWELL

CENTER FOR ENTREPRENEURSHIP AND MANAGEMENT

Summer 1994 Saturday & Sunday Seminars!

If you have always wanted to start your own consulting firm, import/export firm, mail-order business or any self-supporting venture—now is the time to prepare yourself for the future.

Please note that most workshops include a Harvard Business School Case Study (HBS). Others include extensive hand-outs in lieu of the Harvard Case Studies.

Mel Epstein is President and founder of Business Strategies, a consulting firm in Cambridge, MA which assists individuals and companies in implementing successful business plans. He has presented more than one thousand seminars in all areas of business, taught at the Harvard University Extension Program in Administration and Management, and received a Master of Business Administration from Stanford University.

For further information about the Center For Entrepreneurship, please contact Cathy Kendrick at 508-934-2495.

*ENTREPRENEURSHIP: STARTING AND SUCCEEDING IN ANY TYPE OF BUSINESS 13-02

This seminar is for the person who is considering starting his or her own business. It covers the four key elements of a strategy for becoming a successful entrepreneur: choosing the business that is right for you, organizing, financing, and marketing. Includes answering legal and tax questions, record keeping, raising money, preparing a business plan, marketing, motivation, and selling. (HBS)
 Section I: Sat: 10:00 am-6:00 pm—1 day—6/4/94
 Section II: Sun: 10:00 am-6:00 pm—1 day—7/17/94
 Tuition: \$74.00

*STARTING YOUR OWN IMPORT/EXPORT BUSINESS I 13-03

This seminar covers how to develop a complete import/export strategy: selecting products, identifying distributors, arranging transportation and payments, satisfying U.S. Customs requirements, and meeting export regulations. Includes how to locate overseas suppliers and buyers, and how to develop a strategy that will work for you. Each participant will receive a 100-page pamphlet and Harvard Business School Case Study. (HBS)
 Section I: Sun: 10:00 am-6:00 pm—1 day—6/5/94
 Section II: Sat: 10:00 am-6:00 pm—1 day—7/16/94
 Tuition: \$74.00

*STARTING YOUR OWN CONSULTING PRACTICE 13-04

For those in any field who want to design a strategy for starting and succeeding in the consulting business. The course will cover the three key elements of success in the consulting business: organizing, financing, and marketing. Topics include: how to identify potential clients, how to advertise, how to make a sales presentation, how to price your services, how to close a sale, how to translate your expertise into being an effective consultant, writing successful proposals, knowing when to give free advice, strategies for gaining acceptance of your consulting advice throughout an organization, techniques for estimating tasks and time required to complete a project. Emphasis is on developing a strategy that will work for you.
 Sun: 10:00 am-6:00 pm—1 day—6/12/94—Tuition: \$74.00

*STARTING YOUR OWN MAIL ORDER BUSINESS 13-05

Learn the basics of succeeding in the mail order business by following the six key steps: developing your mail order concept, selecting merchandise, preparing an ad or catalog, renting mailing lists, and monitoring results. Includes a Harvard Business School case study, and a video of L.L. Bean's methods for managing a mail order business. You will learn how to begin with a classified ad, how to estimate your response rate, and how to use a financial feasibility formula for a mail-order venture. (HBS)
 Section I: Sun, 10:00 am-6:00 pm—1 day—6/19/94
 Section II: Sat, 10:00 am-6:00 pm—1 day—7/23/94
 Tuition: \$74.00

*STARTING YOUR OWN IMPORT/EXPORT BUSINESS II: Marketing, Selling & Negotiating Tactics for Import/Export Entrepreneurs 13-23

Successful implementation of an import/export strategy requires the development of sophisticated marketing, selling and negotiating skills. In this seminar we will cover how to determine what product or service to import or export, how to locate and negotiate with suppliers, how to price your goods, and how to assess overall financial feasibility of your import/export plan. (HBS) **Please note:** Import/Export I is not a prerequisite for Import/Export II.
 Sun: 10:00 am-6:00 pm—1 day—8/14/94—Tuition: \$74.00

*STARTING AND SUCCEEDING IN THE CATERING AND RESTAURANT BUSINESS 13-08

Opportunities abound for the catering and restaurant entrepreneur with a well-prepared business plan (more than 40% of the food dollar is consumed outside the home). This seminar covers preparing a complete business plan for a successful catering and restaurant business: defining your food service concept, organizing, financing and marketing. We will show you how to advertise, plan menus, analyze costs to increase profits, determine the best location, raise money and motivate your staff. Includes extensive handouts illustrating successful catering and restaurant management practices. The emphasis is on developing a plan of action which will succeed for you! (HBS)
 Sat: 10:00 am-2:00 pm—1 day—6/18/94—Tuition: \$38.00

*ATTRACTING NEW BUSINESS & CLOSING THE SALE 13-26

The intensely competitive economy of the 1990's requires a sharpening of your techniques for attracting new business & closing the sale. This seminar will show you how to use a proven client-centered method for increasing your sales. Includes how to make effective presentations on the telephone, to professional & industry associations, and at in-person meetings. Covers the five key steps in a sales presentation, how & when to close, and how to make every sales meeting a success (defined as learning how the potential client feels about your product & service). Includes a video on 24 ways to close a sale. You will have the opportunity to refine your techniques in a dialogue process with the seminar leader. We will cover the 4 key ways to attract new business and how to determine which way is the best for you and your company!
 Sun: 10:00 am-6:00 pm—1 day—6/26/94—Tuition: \$74.00

*FINANCE FOR ENTREPRENEURS 13-29

For entrepreneurs & general managers who need to use finance for overall decision making, business planning, and raising money. Covers fundamental & advanced financial techniques. Designed to add to your knowledge, whether or not you have studied finance. Includes the venture capital valuation method with dilution & without dilution, free cash flow as a basis for decision making, stages of venture capital investment, the four financial statements, the five types of financial ratios, government rules for raising money by small business, and preparing an effective business plan. Includes Harvard Business School memos called "A Method For Valuing High-Risk, Long-Term Investment" and "Note On The Financial Perspective: What Should Entrepreneurs Know?"
 Sun: 10:00 a.m.-6:00 pm—1 day—8/13/94—Tuition: \$74.00

FRANCHISING: SELECTING & BUYING A FRANCHISE OF YOUR OWN 13-30

For anyone considering buying a franchise, this seminar will assist you to distinguish between attractive and unattractive franchises. Covers understanding the key benefits a franchise can offer you: site selection, initial training, a recognized brand name, a proven business system, ongoing consulting, regular advertising, and a product or service that satisfies the needs of the target consumer. Includes understanding the costs of the franchise arrangement: initial franchise fee, total investment required, ongoing royalty fee, and the limitations imposed by the franchise agreement. We will show you how to develop a complete business plan for your franchise and how to plan for your salary to operate the franchise and a fair return on your investment in the franchise. Topics include obtaining financing a systematic franchise evaluation method, owning a franchise while keeping your current job, & comparing franchises to buying/starting a business.
 Sat: 2:00-6:00 pm—1 day—6/18/94—Tuition: \$38.00.

Special Six Week Credit Course on Entrepreneurial Management!

ENTREPRENEURIAL MANAGEMENT: 69.276 STARTING, INNOVATING AND MANAGING SMALL, MEDIUM & LARGE SIZE VENTURES

Develops the ability to successfully start, innovate and manage in small, medium and large size ventures. The program covers the four key elements of successful entrepreneurial management: deciding what business to be in, organizing, financing and marketing. Includes preparing a business plan, intrapreneuring, raising venture capital, selling, negotiating and building an effective organization. Topics given special consideration are the practice of innovation, the art of leadership and how to relate your talents to succeeding in an entrepreneurially managed venture. Includes videos on successful entrepreneurial ventures and Harvard Business School case studies on starting a business of your own. (See credit course schedule for Summer II on page 9 for additional details.)
 Mon & Wed: 7:00-10:00 pm—Summer II,
 Class begins 7/11/94.

UNDERGRADUATE DAY ADMISSIONS

UMass Lowell Undergraduate Day School

Undergraduate programs are offered part-time and full-time in:

Health Professions

- *Clinical Laboratory Sciences
Medical Technology Option
- *Exercise Physiology
- *Health Education
- *Nursing
- *Undeclared Health

Management

- *Accounting
- *Finance
- *Industrial Management
- *Management
- *Manufacturing and
Management Information
Systems
- *Marketing
- *Undeclared Business

Engineering

- *Chemical Engineering
- *Civil Engineering
- *Electrical Engineering
- *Mechanical Engineering
- *Nuclear Engineering
- *Plastics Engineering

Fine Arts

- *Art
- *Fine Arts
- *Graphic Design
- *Music
- *Music Composition
- *Music Education
- *Music History & Literature
- *Performance
- Emphasis: Music Business
- Emphasis: Sound Recording

Arts and Sciences

- *American Studies
- *Biological Sciences
Biotechnology Option
- *Chemistry
- *Computer Science
- *Criminal Justice
- *Economics
- *English
- *Environmental Science
- *History
- *Liberal Arts
- *Mathematics
- *Meteorology
- *Modern Languages
- *Philosophy
- *Physics
- *Political Science
- *Psychology
- *Sociology

Part-time Day Classes Through Encore: an Adult Learner Program

Interested in returning to school part-time during the day to work on a Bachelor's Degree? You can pursue a degree part-time in any of the above programs.

With the help of tutoring, study skills and personalized advising, we can help you make the transition a smooth one. For more information, call the University's Encore Office at :

South Campus (508) 934-2944

North Campus (508) 934-2946

If you would like more information about Undergraduate Day Programs, please call (508) 934-3930 or mail the coupon below:

Please return to: UMass Lowell, Admissions Office, 1 University Ave.,
Lowell, MA 01854

Name _____

Address _____

City, State, Zip _____

Phone _____

Social Security Number _____

Intended Major(s) _____

I am interested in the
following fields of study

- ☐ Engineering
- ☐ Arts & Sciences
- ☐ Management
- ☐ Fine Arts
- ☐ Health Professions

IF YOU ARE INTERESTED IN GRADUATE PROGRAMS AT
UMASS LOWELL, PLEASE CALL THE GRADUATE
SCHOOL OFFICE AT (508) 934-2380

Coming in June 1994... The Merrimack Valley Manufacturing Partnership

The MERRIMACK VALLEY MANUFACTURING PARTNERSHIP is one of five centers in Massachusetts, cooperatively sponsored by the National Institute of Standards and Technology and the Massachusetts Executive Office of Economic Affairs. This state-wide program, coordinated by Bay State Skills Corporation, is designed to assist small and medium sized manufacturing firms throughout Massachusetts with:

- Defense conversion opportunities
- Resolution of specific manufacturing problems
- Manufacturing assessments by field agents
- Access to new technology-based manufacturing
- Workforce training

The Merrimack Valley Manufacturing Partnership: An alliance between organizations involved in training and development, including UMass Lowell, Northern Essex Community College, Middlesex Community College, the Merrimack Valley Planning Commission, the Merrimack Valley Project, M/A-Com, Inc., and Husky Injection Molding Systems, Inc.

If you would like more information about the Merrimack Valley Manufacturing Partnership, fill out the coupon below and mail or fax to: UMass Lowell, Center for Industrial Competitiveness, Pasteur 307, One University Avenue, Lowell, MA 01854. Fax: (508) 934-3021. Or call (508) 934-2722, Monday through Thursday.

Please send me more information about the MERRIMACK VALLEY MANUFACTURING PARTNERSHIP

Employee Name _____

Company Name _____

Title _____

Address _____

Phone _____

City/State/Zip _____

